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DISEASES CAUSED BY BACTERIA AND FUNGI

MILJKOVIĆ, V. & PERKUČIN, R. (1952). **[Gangrenous mastitis in sheep** (*Staphylococcus aureus* **infection.]**—*Vet. Glasn.* **6,** 701-708. [In Serbian.] **2973**

Treatment with sulphonamides was of some but only slight value for gangrenous mastitis caused by *Staph. aureus* in ewes. Penicillin given either by intramammary infusion or by injection into the udder tissue was curative. —I. MARTINI.

BARBER, M. (1953). **The effect of serial passage in other antibiotics on penicillinase-producing staphylococci.**—*J. gen. Microbiol.* **8,** 104-110. **2974**

Of 7 strains of penicillinase-producing staphylococci exposed to streptomycin, 3 did not change in penicillinase production, 3 produced less penicillinase following decrease in growth rate and one strain showed selection of penicillin-sensitive variants. Of 3 strains exposed to chloramphenicol one remained unchanged, one became more resistant to penicillin following increased growth-rate, and one less so, on account of selection of sensitive variants. —A. SEAMAN.

GALIKEEV, H. L. (1953). **[Bactericidal properties of green leaves from trees.]**—*Microbiologiya, Moscow.* **22,** 59-60. **2975**

Leaves from the shady north sides of birch, lime, maple, oak, rowan and spruce trees were sprayed with *Staph. albus* and at intervals varying from immediately after spraying to 18 hours later were pressed on to the surface of solid media and then removed, leaving behind such matter as adhered to the medium. The amount of staphylococcal growth on media so treated decreased in proportion as the length of exposure of the organism to the action of the green leaves increased, no colonies appearing when there had been 18 hours' exposure or more. Those on spruce were killed after 6 hours. No pathogenic organisms were found on any fresh leaves, even in towns.—F.A.A.

PODGÓRSKI, J. (1950). Badania nad nosicielstwem paciorkowca zołzowego. **[Studies on carriers of** *Streptococcus equi***.]**—*Ann. Univ. M. Curie-Skłod.* Sect. DD. **5,** 317-323. [In Polish. English and Russian summaries.] **2976**

Of 251 swabs taken from the upper respiratory passages of 132 racehorses immediately after a race, 6 yielded *Str. equi* and 10 *Str. pyogenes*. No epizootic of strangles occurred among these horses when they were abruptly changed to poor living conditions. —J. R. MITCHELL.

RAFYI, A. & MIR CHAMSY, H. (1953). Épizootie ovine de septicémie à *Streptococcus zooepidemicus* en Iran. Étude bactériologique. Traitement. [*Streptococcus zooepidemicus* **infection of sheep in Persia.**]—*Bull. Acad. vét. Fr.* **26,** 145-148. **2977**

An account of an outbreak of *Str. zooepidemicus* infection in lambs and adult sheep, this being stated to be the first report of an epizootic caused by that organism in sheep. Mortality was 70–90% in lambs and 40–60% in adults. Details were given of the bacteriological diagnosis. Penicillin treatment proved to be highly effective.—G. V. LAUGIER.

BRENNAN, A. D. J. (1953). **Anthrax, with special reference to the recent outbreak in pigs.**—*Vet. Rec.* **65,** 255-258. **2978**

A general discussion of factors contributing to the sharp increase in notified cases of anthrax in animals in Britain since the second world war. The rise has been most marked in pigs, in which the intestinal form is now by far the commonest.

B. quoted some unpublished work by Hudson to emphasize the difficulty of destroying anthrax spores in contaminated bones. A summary of the distribution, by occupations, of human cases during the last 20 years was appended.
—J. T. Done.

Soliman, K. N., Rollinson, D. H. L., Barron, N. S. & Spratling, F. R. (1953). **An outbreak of naturally acquired tuberculosis in goats.**—*Vet. Rec.* **65**, 421-425. 2979

An account of fatal TB. in a female kid, three and a half months old, belonging to a herd of 76 goats. Following testing of the herd with Weybridge P.P.D. avian and mammalian types of tuberculin, 41 of the goats were slaughtered and macroscopic lesions were found in 32. The source of the infection was discussed.—F.E.W.

Bareggi, G. (1953). La tuberculosi bovina nel bassopiano Lombardo. [**TB. in cattle in Lombardy.**]—*Progr. Vet., Torino.* **8**, 174-179. 2980

B. advocated the systematic immunization of young calves with B.C.G. vaccine.
—I. Martini.

Holl, F. (1952). Vergleichende kulturelle Untersuchungen über das Vorkommen von Tuberkelbakterien im Blute tuberkulinpositiver Hühner vor und nach der Tötung. [**Presence of tubercle bacilli in the blood of tuberculin positive fowls before and after slaughter.**] — *Inaug. Diss., Munich.* pp. 30. 2981

M. tuberculosis was recovered culturally from about 50% of " no-visible-lesion " reactor fowls. Blood samples taken P.M. yielded more positive cultures than those taken during life.
—E. A. Hirsch.

Nègre, L. & Bretey, J. (1953). Aperçus nouveaux sur le rôle des bacilles tuberculeux incomplètement évolués dans la pathogénie de la tuberculose. [**The role of partially developed tubercle bacilli in the pathogenesis of TB.**]—*Bull. Acad. nat. Méd.* **137**, 98-101. 2982

Mainly a discussion on previous work [*V.B.* **22**, 3039] with young cultures of tubercle bacilli, and with filtrates of such cultures. The non-progressive type of lesion could never be produced in g. pigs by inoculation of cultures from the sputum of patients with pulmonary TB., possibly because the young tubercle bacillus can complete its chemical constitution more rapidly under the favourable conditions in the lungs.—F.E.W.

Pierce, C. H., Dubos, R. J. & Schaefer, W. B. (1953). **Multiplication and survival of tubercle bacilli in the organs of mice.**—*J. exp. Med.* **97**, 189-206. 2983

Cultures of bovine and human types of tubercle bacilli, known to differ in their pathogenicity for experimental animals, were injected into the brain, peritoneal cavity, or bloodstream of mice. The numbers of living bacilli in the tissues at various intervals were quantitatively determined. Both virulent and attenuated strains can initiate an infection in normal animals. Control of the non-progressive disease results from mobilization of antimicrobial agencies at the foci of infection. The inflammatory reaction produces in the diseased area a physico-chemical environment inimical to continued multiplication of bacilli.—W. R. Bett.

Heidenreich, A. (1952). Stört die Trächtigkeit und im Zusammenhang mit ihr die Milchleistung bei der Tuberkulinisierung von Rinderbeständen durch Beeinflussung der Reaktion, insbesondere der Hautdickenzunahme bei der Intrakutanprobe. [**Influence of pregnancy and lactation on the tuberculin test in cows, particularly on the thickness of the reacting skin.**]—*Inaug. Diss., Munich.* pp. 52. 2984

Pregnancy does not influence the intracutaneous tuberculin test in cows. The tuberculin reaction during full lactation is less distinct than during moderate lactation or the dry period.
—W. R. Bett.

Browning, P., Calver, K. M. & Paterson, E. E. (1953). **Teepol in the preparation of sputum for tubercle culture.**—*Brit. med. J.* June 27th, 1432. 2985

The addition of an equal volume of the detergent Teepol, a solution of sodium higher alkyl sulphates, to 142 sputum specimens from tuberculous patients homogenized the specimens after the mixture had stood for 6–24 hours at room temperature. Tubercle bacilli could be cultured from all except one of the 41 microscopically positive sputa while positive cultures were also obtained from 8 of the microscopically negative sputa. Three specimens, one positive and 2 negative, were contaminated.
—A. Ackroyd.

Barry, V. C., Conalty, M. L. & Gaffney, E. (1953). **Isoniazid-resistant strains of *Mycobacterium tuberculosis*.**—*Lancet.* **264**, 978-979. 2986

The technique is described of producing isoniazid-resistant variants of H_{37} Rv and of Ravenel RV. These do not grow in simple

media in the absence of serum. In unmodified synthetic Youmans medium, strong growth is obtained after previous treatment with activated charcoal.—W. R. Bett.

Francis, J. & Hoggarth, E. (1953). **The use of the chick embryo in the search for anti-tuberculous drugs.**—*Brit. J. Pharmacol.* **8**, 125-129. 2987

A description of a technique used in testing substances for the therapy of TB. A standard quantity (reduced in subsequent tests where toxic in the first instance) was injected into the yolk-sac of an experimentally infected egg and its activity evaluated by examining smears prepared from the chorio-allantoic membrane after 5 days' incubation. The test detected the activity against TB. of the standard drugs, but gave positive results with certain compounds which could not otherwise be shown to possess activity. This was true of tests against other organisms in the chick embryo, and the test was considered to have the same general validity as routine screening methods commonly used against other organisms in the chick embryo, and therefore to be useful. By the use of the test a new drug, 6-amino-4-methyl-2:3:5:7-tetra-azaindene was found to be therapeutically active.—A.S.

Winterscheid, L. C. & Mudd, S. (1953). **The cytology of the tubercle bacillus with reference to mitochondria and nuclei.**—*Amer. Rev. Tuberc.* **67**, 59-73. 2988

M. thamnopheos and the H_{37} Rv strain of human type *M. tuberculosis* contain within the same cell polar structures (mitochondria) which are not stained with nuclear stains, and nuclei which are stained by nuclear stains incapable of staining mitochondria.—W. R. Bett.

Youmans, G. P. & Youmans, A. S. (1953). **Studies on the metabolism of *Mycobacterium tuberculosis*. I. The effect of carbohydrates and alcohols on the growth of *Mycobacterium tuberculosis* var. *hominis*. II. The effect of compounds related to the Kreb's tricarboxylic acid cycle on the growth of *Mycobacterium tuberculosis* var. *hominis*.**—*J. Bact.* **65**, 92-95 & 96-99. 2989

I & II. Out of 24 carbohydrates and polyhydric alcohols tested, *M. tuberculosis* H_{37} Rv utilized for growth only glycerol, glucose, and maltose, growth being most rapid in the glycerol medium.

A tricarboxylic acid cycle may be involved in the carbohydrate metabolism of human type *M. tuberculosis* since pyruvic, acetic, oxalacetic, oxalosuccinic, and α-ketoglutaric acids supported the growth of the virulent H_{37} Rv strain. —W. R. Bett.

Salvioli, G., Degli Esposti, A. & Dina, M. A. (1953). Die experimentelle Tuberkulose des nicht geimpften und geimften Hundes mit lebenden (B.C.G.) oder toten Bazillen (A.I.P., V.P.S. und V.D.S.). **[Experimental TB. in puppies vaccinated with live and dead tubercle bacilli, and in unvaccinated puppies.]** —*Acta tuberc. scand.* **28**, 147-154. [In German. English, French and Italian summaries.] 2990

An account of comparative vaccination tests in new-born puppies, using B.C.G. and Petragnani anatuberculin (A.I.P.), followed by challenge i/v injection of virulent cultures of tubercle bacilli. Of 17 vaccinated with B.C.G. 6 died as compared with 3 out of 16 treated with A.I.P. In those that died, lesions of tuberculous broncho-pneumonia were generally demonstrable, whereas in the survivors they were usually productive or sclerotic, or rarely allergic. All the puppies that died had specific lesions in the tracheo-bronchial lymph nodes, while in most of the survivors the lymph-node lesions were non-specific.—F.E.W.

Miller, R., Jr. & Goodner, K. (1953). **Studies on the stability of lyophilized BCG vaccine.** — *Yale J. Biol. Med.* **25**, 262-283. 2991

Using 9 strains of B.C.G. and one of vole bacillus, the authors investigated the best conditions to reduce cellular mortality in dried vaccines. These included highly dispersed young cultures suspended of neutral pH and maintained at low temperatures before and after drying. Of 62 adjuvants investigated, those giving greatest protection included galactose, glucose (1·0 to 20%), sucrose, lactose, sodium glutamate (0·1 to 0·25%) and sodium aspartate. —A. H. Linton.

Pratt, D. (1953). **Growth inhibitory action of copper for *Mycobacterium phlei*.**—*J. Bact.* **65**, 157-159. 2992

Cupric ion added to the synthetic medium described by Davis & Mingioli [*V.B.* **21**, 994] inhibited the growth of *M. phlei*. Inclusion of citric acid or α-amino acids counteracted this, possibly by forming non-ionized copper complexes.—J. E. Smith.

Williamson, G. T. & Salisbury, R. M. (1952). **Johne's disease in sheep.**—*N.Z. vet. J.* **1**, 15-17. 2993

The authors recorded the first occurrence

of Johne's disease in sheep in New Zealand, in a single flock. The disease had since been diagnosed in cattle in the same area, but not on the same farm.—R.M.

MANTOVANI, G. & VACIRCA, G. (1953). Contributo alla terapia della mastite bovina da Corynebacterium pyogenes. [**Treatment of bovine mastitis caused by** *Corynebact. pyogenes.*]—*Progr. Vet., Torino.* **8,** 248 & 250. **2994**

For the treatment of mastitis in cows, caused by *C. pyogenes*, the authors recommended the i/m injection of streptomycin, (5 g. daily for three days) and the use of a formolized vaccine.—I. MARTINI.

DELESTRE, R. (1953). Quelques essais de traitement de la lymphangite ulcéreuse du cheval par la pénicilline. [**Penicillin therapy of ulcerative lymphangitis of horses** (*Corynebact. ovis* **infection).**]—*Rev. Vét. milit.* **8,** 171-177. **2995**

Six million units in four doses were given intramuscularly, with repeated million-unit doses if necessary. Four out of five cases were cured.—E. MARSH-JONES.

FATHI, R., BARAFROUKHTÉ, A., CHARIF, Y. & FEKRAT, M. (1953). Le traitement de la morve des équidés par l'anamorve-sulfadiazine et la malléine-sulfamézathine. [**Treatment of glanders in horses with sulphonamides and mallein.**]—*Arch. Inst. Hessarek.* No. 7. pp. 22-26. **2996**

The authors claimed that by administration to horses and mules of either 5 ml. of a formolized preparation of *Pfeifferella mallei*, subcutaneously, plus 25 g. or 20 g. sulphadiazine respectively, in five equal doses, *per os;* or mallein plus sulphamethazine, 384 out of 400 animals were cured.—E. MARSH-JONES.

STEHLE, E. (1952). Die Abtrennung von Serotypen der *Erysipelothrix muriseptica* (syn. *E. rhusiopathiae*) mittels Präzipitation. [**Typing of** *Erysipelothrix rhusiopathiae* **strains using a precipitin reaction.**]—*Inaug. Diss. Giessen.* pp. 28. **2997**

Antigen extracts prepared by various methods from a number of strains of *E. rhusiopathiae* were tested for precipitin reactions with specific immune sera. The best antigen extracts were those obtained by shaking the bacterial suspension for 24 hours or by extraction in N/2 HCl. The strains thus examined could be classed into two serological types.

—A. MAYR-HARTING.

CARTER, G. R. & BYRNE, J. L. (1953). **A serological study of the hemorrhagic septicemia** *Pasteurella.*—*Cornell Vet.* **43,** 223-230. **2998**

The authors examined 68 strains of *Past. septica*, using two different precipitation techniques and a capsular swelling test to determine the serological types found in the important domestic animals of Canada. Three distinct types, designated A, B and C, were found to predominate in cattle, swine, bison, and fowls. Using strains obtained from other workers the authors were able to correlate their study with previous work.—A.S.

ALEXANDER, M. M., SAWIN, P. B. & ROEHM, D. A. (1952). **Respiratory infection in the rabbit: an enzootic caused by** *Pasteurella lepiseptica* **and attempts to control it by vaccination.**—*J. infect. Dis.* **90,** 30-33. **2999**

An organism considered to be *Past. lepiseptica* was established as the cause of a respiratory infection, " snuffles ", in a large rabbit colony with a 50% mortality rate. *Past. lepiseptica* was isolated from 9 out of 12 rabbits with similar symptoms, sent in from other States and observed, killed and examined bacteriologically. The authors described two vaccination experiments using a heat-killed 18-hour culture in sterile saline, subsequent exposure being left to chance. In a total of 706 animals death from respiratory disease decreased from 14·75% to 8·69% following the vaccination of 184 of the rabbits born between arbitrarily selected dates.

—F.E.W.

GRAY, D. F. & CAMPBELL, A. L. (1953). **The use of chloramphenicol and foster mothers in the control of natural pasteurellosis in experimental mice.**—*Aust. J. exp. Biol. med. Sci.* **31,** 161-165. **3000**

Past. pneumotropica infection [*V.B.* **20,** 2493 & 2494] occurred intermittently in the authors' colony of C57 black mice which were used for work on TB. Chloramphenicol, 1 mg. per mouse per day in the drinking water for 2 weeks, was tried with 20 breeding females with advanced clinical pneumonia, but the response of the lesions was not satisfactory enough for the mice to be retained for breeding or experimental purposes. When new-born mice were removed from their apparently healthy dams soon after parturition and transferred to rat foster mothers, the resultant colonies remained free from the infection.—F.E.W.

MUKAŘOVSKÝ, L. (1951). Příspěvek k pathogenesi experimentální cholery drůbeže a therapii sulfaguanidinem. [**Pathogenesis of**

experimental fowl cholera and treatment with sulphaguanidine.] — *Spisy Vysoké Školy Vet.* **19,** No. 177. pp. 1-61. [French and Russian summaries.] **3001**

Pasteurella septica was found to invade the blood stream from the intestine of an infected fowl on frequent occasions, but not to multiply in the blood except shortly before death. Sulphaguanidine therapy was tried with success; 1 g. was given over 18 hours, 0·5 g. during the following 24 hours and then 1 g. again between the 8th and 13th day of the disease.

—A. MAYR-HARTING.

LANCASTER, J. E. & CRABB, W. E. (1953). **Studies on disinfection of eggs and incubators. I. The survival of *Salmonella pullorum, thompson* and *typhi-murium* on the surface of the hen's egg and on incubator debris.**—*Brit. vet. J.* **109,** 139-148. [Abst. from authors' summary.] **3002**

S. pullorum, S. thompson and *S. typhi-murium* when placed on the surface of hen's eggs disappeared rapidly from the shell of the egg under normal egg-incubator conditions but not when atmospheres of increased humidity were used. At room temp. the organisms survived for approx. 21 days on clean eggs and for a longer period on artificially dirty eggs. Under the conditions described, penetration of *S. pullorum* and *S. thompson* into the white of the egg occurred a very small number of times. External contamination of the shell of a naturally clean egg with *S. pullorum* and *S. thompson* would therefore appear to be an unlikely means of introducing infection when a separate hatching compartment is in use.

GORDON, R. F., LANCASTER, J. E. & TUCKER, J. (1953). **Chick sexing instruments as a means of spread of *S. pullorum* and the efficiency of formaldehyde in the sterilization of the optical tubes.**—*Vet. Rec.* **65,** 481-482. **3003**

The authors demonstrated that *S. pullorum* can be transferred from infected to healthy chicks by means of the glass tube of a chick sexing instrument inserted into the cloaca and that chicks infected by this means are capable of spreading infection in their faeces. In tests of efficiency of an airtight apparatus supplied for the sterilization of six tubes at a time and using a paraformaldehyde tablet, *S. pullorum* on contaminated tubes was killed after 30 min.

—F.E.W.

PITAL, A., STAFSETH, H. J. & LUCAS, E. H. (1953). **Observations on the cobalt enhancement of penicillin activity against *Salmonella pullorum*.**—*Science.* **117,** 459-460. **3004**

Cobalt, previously administered to chicks, enhanced threefold the protective action against *S. pullorum* of a penicillin feed. Synergism between cobalt and penicillin also occurred *in vitro*.—J. E. SMITH.

GREENING, C. L., PRICE, A. & TAYLOR, J. (1953). **A new *Salmonella* type isolated from an adult male with diarrhoea: *Salm. newlands*.**—*Mon. Bull. Minist. Hlth Lab. Serv.* **12,** 89-90. **3005**

The antigenic structure of a new salmonella type isolated from the faeces of a human being (*S. newlands*) is represented by the formula *iii*, X: e, h-e, n, x.—W. R. BETT.

LUKAČEVIĆ, J. (1952). Sadašnje stanje bruceloze goveda u NR B i H. [**The present state of cattle brucellosis in the People's Republic of Bosnia and Herzegovina, Yugoslavia.**]—*Veterinaria Zborn. Radova Oblasti anim. Proizvod.* **1,** 334-346. [Abst. from English summary.] **3006**

Statistics compiled from the serological examination of blood from cattle established that brucellosis on large State farms is spreading fast. In 1949, 1950 and 1951 there were 2·5%, 6·5% and 17% reactors respectively. In 1950–51, 6% of the animals on smaller farms and 2·1% on co-operative farms were positive reactors. Data available from cattle on individually owned farms indicated that they are rarely infected.

L. stated that the cause of this spread of infection lies primarily in the purchase of cattle from infected farms in other Republics even though the purchased cattle react negatively to the serological test.

D'APICE, M. & PENHA, A. M. (1950). Combate de la brucelosis bovina en los tambos de tipo "A" y "B" mediante la aplicación de "Brucella 19", [**Control of bovine brucellosis in selected dairy and beef herds using Strain 19 vaccine.**]—*Gac. vet., B. Aires.* **12,** 52-63. **3007**

Among 6,219 cows in 49 herds vaccinated during the years 1943-47, only 86 abortions subsequently occurred, whereas one year prior to vaccination 930 abortions had been recorded.

—G. P. MARSHALL.

PLOMMET, M. (1952). Traitement et prophylaxie de la brucellose d'origine bovine par les oligo-éléments. [**Trace elements in the**

treatment and prophylaxis of bovine brucellosis.] — *Thesis, Paris (Alfort).* pp. 84. 3008

An account of the treatment with trace elements (manganese, copper, cobalt, zinc and magnesium) of two brucella-infected cows and four horses with fistulous withers, and of the prophylactic use of these elements on the soil, with the suggestion that useful results were obtained.—G. P. MARSHALL.

FOSTER, H. G., JR., LEAR, S. A. & METZGER, H. J. (1953). **Time—temperature studies of the inactivation rate of *Brucella abortus* Strain 2308 in milk.**—*J. Milk Tech.* **16,** 116-120. 3009

Using a laboratory apparatus to simulate the process of commercial pasteurization, the authors found that *Br. abortus* was killed in 23 min. at 142·7°F. and in 14 sec. at 161·6°F. in milk which had not been preheated. The organism was killed in 12 sec. at 161·6°F. after the milk had been preheated for one min. (as in the HTST process). The process of heating the milk for 23 min. at 142·7°F. possessed the greatest safety margin in respect of *Br. abortus*. —R.M.

GWATKIN, R. & DZENIS, L. (1952). **Brucellosis. III. Comparison of immunity produced in guinea pigs by Strain 19 in saline and in a saline-oil emulsion.**—*Canad. J. comp. Med.* **16,** 338-341. [See also *V.B.* **23,** 1468.] 3010

Two groups of g. pigs were vaccinated with Strain 19 of *Br. abortus* either in saline or in saline-oil suspension. A third group served as controls. Their immunity was challenged by instillation of virulent culture into the conjuctiva at 4, 8, and 12 months. There was no significant difference in immunity at 4 or 8 months, but 12 months after vaccination the immunity conferred by the saline-oil suspension was superior to that of the saline suspension. —P. J. G. PLUMMER.

OLITZKI, A. L. & SZENBERG, E. (1953). **Toxicity, infectivity and antigenicity of a streptomycin dependent mutant of *Brucella abortus* (Strain 19).**—*Proc. Soc. exp. Biol., N.Y.* **82,** 539-541. 3011

Mice vaccinated i/p with living cultures of a streptomycin-dependent mutant of *Br. abortus* Strain 19 resisted challenge with the parent strain of streptomycin-susceptible *Br. abortus*.—E. A. GIBSON.

THORNE, A. L. C. (1953). **The production and use of a *Brucella abortus*, Strain 19, desiccated vaccine in Nigeria.**—*Brit. Vet. J.* **109,** 234-241. [Author's summary slightly modified.] 3012

T. described the methods of production of a *Br. abortus* Strain 19 vaccine which is desiccated in a skim milk and phosphate buffer medium with added lactose. The loss of viability during desiccation has been less than 50%. On storage, little further loss of viability has been recorded after 6 months. Reconstituted vaccine at a dose of 1 ml. is administered *via* the caudal fold. This route appears to give as good results as the normal subcutaneous and the intracaudal routes.

COTTON, C. M. & SWOPE, R. E. (1951). **A study of the effect of aureomycin, terramycin, and neomycin on brucellosis in guinea pigs.**—*Proc. Vth Congr. bras. Vet.* São Paulo, 1950. 677-681. [In English.] 3013

A description of experiments comparing the curative powers of terramycin, aureomycin and neomycin for experimental *Br. abortus* infection in g. pigs. Terramycin and aureomycin administered orally produced high mortality among the treated animals though when injected i/m both were curative. Under the conditions of the experiment neomycin was not curative though it proved active against the brucella organisms *in vitro*.—A.S.

GASPARDIS, D. (1953). Iridociclite recidivante del cavallo da leptospire. Nota preventiva. [**Leptospira as the cause of equine periodic ophthalmia.**]—*Clin. Vet., Milano.* **76,** 31. 3014

In two cases of equine periodic ophthalmia the serum agglutination test was positive for *L. icterohaemorrhagiae* and *L. pomona*. One case responded to penicillin treatment. —I. MARTINI.

HARTWIGK, H. (1953). Die periodische Augenentzündung des Pferdes als Spätsymptom der Leptospirose. [**Equine periodic ophthalmia, a late symptom of leptospirosis in horses.**]—*Tierärztl. Umsch.* **8,** 154-157. 3015

A discussion of recent literature, including a table showing that agglutination-lysis tests for leptospira infection gave positive reactions in 60–86% of horses with periodic ophthalmia, as compared with 13–46·7% of horses with normal eyes. The organism most commonly encountered was *L. grippo-typhosa*. H. considered the field mouse to be a possible source of infection of drinking water.—E. G. WHITE.

ENSOR, C. R. & MCCLURE, T. J. (1953). **Bovine leptospirosis in Northland. I. Incidence in animals and man. II. Some clinical aspects of bovine leptospirosis.**—*N.Z. vet. J.* **1,** 47-49. Discussion p. 50. 3016

I. During 1952 leptospirosis was reported in cattle on 76 farms: diagnosis was supported by laboratory findings on 11 farms. Of 15 suspected human cases in the area, 8 gave positive agglutination reactions to *L. pomona*.

II. *L. pomona* is the only cause of haemoglobinuria detected in calves in New Zealand: it may also cause some cases in adult cattle. The authors discussed the pathogenesis, epidemiology and control. Aureomycin is effective in the early haemoglobinuria stage of the disease and eliminates carriers, streptomycin is effective at the same stage but does not eliminate carriers, and penicillin is effective only at the stage of pyrexia, 2–3 days before the haemoglobinuria. It is not known whether pigs transmit the infection to calves in the area.

—E. G. WHITE.

CORDIER, G. (1953). Leptospirose bovine en Tunisie. **[Bovine leptospirosis in Tunisia.]** —*Rec. Méd. vét.* **129,** 7-15. 3017

An account of bovine leptospirosis in Tunisia. Apart from the commonly recorded symptoms, skin lesions resembling scalds sometimes occur. Serological evidence incriminates *L. grippo-typhosa* and *L. bovis*, but not *L. icterohaemorrhagiae*. Vitamin B_{12}, with or without penicillin, assists recovery.—J. E. SMITH.

DUNN, M. C. & THOMPSON, P. E. (1953). **Chemotherapy of experimental leptospirosis with chloramphenicol (chloromycetin), subtilin and Penicillin G.**—*J. infect. Dis.* **92,** 33-39. [Authors' summary slightly modified.] 3018

The actions of chloramphenicol, subtilin and penicillin G against *Leptospira icterohaemorrhagiae* were observed *in vitro* and in experimental animals.

None of the drugs exhibited lethal effect *in vitro* or eradicated experimental infections in hamsters, g. pigs or dogs. Chloramphenicol and subtilin were ineffective in protecting g. pigs, and chloramphenicol was ineffective in protecting hamsters. Penicillin G was highly effective in protecting against lethal infections in hamsters but was less effective in g. pigs.

Plasma levels of chloramphenicol and of related nitro compounds in hamsters, g. pigs, mice and rats at various intervals after s/c administration of chloramphenicol provide data on the relative rates of degradation or excretion. These data suggest that while each of these animals is of limited usefulness in studying the therapeutic action of this drug, hamsters and g. pigs are particularly unfavourable.

DIETRICH, W. (1953). Typendifferenzierung der Hundeleptospirosen in Frankfurt/M. und Umgebung. **[Differentiation of *Leptospira* species from dogs in the Frankfurt-on-Main district.]**—*Tierärztl. Umsch.* **8,** 89-91. 3019

After an investigation over two years D. considered that the number of species of *Leptospira* capable of producing infection in dogs was larger than had been thought. Agglutination tests with *L. icterohaemorrhagiae, L. canicola* and *L. grippo-typhosa* were therefore not enough for accurate diagnosis. He proposed that tests with *L. saxkoebing, L. mitis* and *L. pomona* should be included in standard diagnostic procedure.—A.S.

FALIŠEVAC, J. (1951). Prilog poznavanju profesionalne leptospiroze u našoj zemlji. **[Occupational leptospirosis in Yugoslavia.]** —*Arhiv. Hig. Rada., Zagreb.* **2,** 159-173. [English summary.] 3020

A clinical account of swineherd's disease in five women employed in a piggery.—E.G.

BUDDLE, M. B. (1952). **A note on penicillin treatment of experimental *Clostridium chauvoei* infection in sheep.**—*N.Z. vet. J.* **1,** 13-14. 3021

Nineteen sheep, 6 of them controls, were given i/m injection of *Cl. chauvoei* culture. A single dose of 100,000 units of calcium penicillin, administered at the time of infection, protected the sheep against 1 ml. of culture. When penicillin was injected 6 hours after infection a dose of 300,000 units was necessary. B. recommended that when deaths from blackleg commence in lambing ewes not immunized against the disease, every ewe should be given one dose of 500,000 units of penicillin at the time of lambing in order to prevent further losses.—R.M.

BULLEN, J. J., SCARISBRICK, R. & MADDOCK, A. (1953). **Enterotoxaemia of sheep: the fate of washed suspensions of *Clostridium welchii* Type D introduced into the rumen of normal sheep.**—*J. Path. Bact.* **65,** 209-219. 3022

Many workers have failed to reproduce enterotoxaemia in sheep by the oral administration of cultures of *Cl. welchii*.

In an investigation of the mechanism of defence the authors studied the fate of washed

suspensions of *Cl. welchii* in healthy sheep with permanent fistulas in the rumen, duodenum and ileum. The organisms were rapidly destroyed in the rumen and probably also during their passage from the rumen to the middle of the duodenum. The few organisms which reached the small intestine multiplied quickly, produced toxin, declined, and disappeared. The authors considered that the failure of the sheep to develop enterotoxaemia resulted, at least in part, from the destruction of the organisms in the rumen and the rapid flow of chyle through the intestine, which prevented the accumulation of bacteria or toxin.—A.S.

VON BERGMANN, J. (1953). Der Fraenkel'sche Gasbazillus (Clostridium perfringens) als Seuchenerreger bei Schafen. [*Clostridium welchii* **infections in sheep.**]—*Schweiz. Arch. Tierheilk.* **95,** 358-363. [English, French and Italian summaries.] **3023**

A general account of *Cl. welchii* and the infections it gives rise to in sheep (lamb dysentery, " struck ", enterotoxaemia), published because of the increasing incidence, since 1950, of these diseases in sheep in Western Germany —R.M.

KATITCH, R. V. (1953). Action de la pénicilline et de la streptomycine sur *W. agni* B, C et D et leur toxine. [**Action of penicillin and streptomycin on** *Clostridium welchii* **Types B, C and D and their toxins.**]—*Rev. Immunol.* **17,** 104-109. **3024**

On 10 ml. samples of 24-hour cultures penicillin at a dose rate of 100–20,000 U. had a bacteriostatic action; streptomycin at a dose rate of 0·1–1 ml. (dilution 1 g. in 10 ml. H_2O.) was less active. Neither of the antibiotics at the higher concentrations inhibited the production of toxins; neither in doses of 5,000–20,000 U. and 1–2·5 ml. respectively protected animals injected with toxin.—E. MARSH JONES.

DAVIES, J. R., MORGAN, R. S., WRIGHT, E. A. & WRIGHT, G. P. (1953). **The results of direct injections of botulinum toxin into the central nervous system of rabbits.** — *J. Physiol.* **120,** 618-623. [Authors' summary copied *verbatim*.] **3025**

In contrast with what has been observed in similar experiments with tetanus toxin, the injection of botulinum toxin Type A into the medulla oblongata and sciatic nerve trunks of rabbits is not followed by any local neurological disturbance.

SJOLLEMA, P. (1953). *Vibrio foetus* **infection in cattle and its influence on fertility.**—*Final Rep. IInd Int. Congr. Physiol. Path. anim. Reprod. artif. Insem., Copenhagen.* 1952. pp. 85-94. [In English.] **3026**

S. gave an outline of *V. fetus* infection in cattle, emphasizing its venereal nature, and described methods of diagnosis; the mucus agglutination test is the method of choice for detection of infected females. He discussed control methods and treatment.—IAN NEWSAM.

BROWN, R., HAZEN, E. L. & MASON, A. (1953). **Effect of fungicidin (nystatin) in mice injected with lethal mixtures of aureomycin and** *Candida albicans.* — *Science.* **117,** 609-610. **3027**

Seligmann [*V.B.* **23,** 63] found that sublethal doses of *C. albicans* are rendered lethal for mice by combination with aureomycin. A single dose of 3 mg. of fungicidin (a product of *Streptomyces noursei*), given s/c before or at the time of inoculation with an otherwise lethal mixture of *C. albicans* and aureomycin, was found to be protective.—JOHN SEAMER.

GRAYSTON, J. T. & FURCOLOW, M. L. (1953). **The occurrence of histoplasmosis in epidemics—epidemiological studies.**—*Amer. J. publ. Hlth.* **43,** 665-676. **3028**

In a study of 13 epidemics of *H. capsulatum* infection, a common source of infection could be established in each outbreak. Infection occurred from the inhalation of air-borne organisms which could be isolated from the soil or dust of most of the source points. Although half of the infections were associated with the clearing of old buildings containing animal excreta (pigeons, fowls), there was no consistent factor common to all the sources of infection. —A. ACKROYD.

CAMPBELL, C. C. (1953). **Antigenic fractions of** *Histoplasma capsulatum.*—*Amer. J. publ. Hlth.* **43,** 712-717. **3029**

By fractionation precipitation with ethanol of cultural filtrates of the mycelial phase and of the yeast phase of *H. capsulatum,* two antigenic components were found.

The 0·1 molar fraction and the crude extract of the yeast phase reacted in the complement-fixation test with sera from early, and, to a less degree, from late cases of histoplasmosis but also cross-reacted with sera from early cases of coccidioidomycosis and cutaneous blastomycosis. The 0·4 molar fraction of the yeast phase and the 0·4 molar fraction of the mycelial phase reacted only with sera from cases of histo-

plasmosis of more than 2 months' duration. Crude extract of the mycelial phase reacted with sera from late cases of histoplasmosis but also cross-reacted with sera from the other mycoses.—A. ACKROYD.

FACCINCANI, F. (1952). Pneumonite nodulare multipla da farcino criptococcico in un cavallo. **[Multiple pulmonary nodules in epizootic lymphangitis.]**—*Arch. Vet. Ital.* **3**, 27-32. [English, French, German and Spanish summaries.] **3030**

A clinical account of a case of epizootic lymphangitis in which there were multiple nodular lesions in the lungs; the bronchial lymph nodes were enlarged.—I. MARTINI.

PALLASKE, G. (1952). Beitrag zur Streptotrichose des Hundes. [*Streptothrix canis* **infection in dogs.**]—*Berl. Münch. tierärztl. Wschr.* **65**, 190-194. **3031**

Histological examination of the peritoneum and mesentery from a dog with peritonitis revealed colonies of a fungus resembling *Streptothrix canis*. P. discussed the literature concerning infection of dogs with this fungus.—R.M.

THOROLD, P. W. (1953). **Equine dermatomycosis in Kenya caused by** *Microsporum gypseum*.—*Vet. Rec.* **65**, 280. **3032**

A note on a skin disease in two horses in the Uasin Gishu area of Kenya, caused by *Microsporum gypseum*. Local treatment with fungicides did not effect a complete cure.

—E. G. WHITE.

I. DROUHET, E. & MARIAT, F. (1952). Recherches sur la nutrition des dermatophytes. I. Étude des besoins vitaminiques. **[Nutritional requirements of dermatophytes.]**—*Ann. Inst. Pasteur.* **82**, 337-347. **3033**

II. DROUHET, E. (1952). Recherches sur la nutrition des dermatophytes. II. Action des acides aminés sur la croissance et la morphogénèse. **[Nutritional requirements of dermatophytes.]**—*Ibid.* 348-355. **3034**

I. Of 34 strains from 17 species of dermatophytes grown on 10 different chemically defined media, 28 grew without vitamins, five needed the pyrimidine portion of thiamine and one (*Trichophyton concentricum*) the thiazole portion. Organic nitrogen, especially amino-nitrogen, is necessary for good growth.

II. Twelve strains were grown on a synthetic medium containing vitamins, in which the only source of nitrogen was either one of 22 amino-acids, or ammonium nitrate, ammonium sulphate, asparagine urea, or casein hydrolysate. Only *T. rosaceum* required histidine. It also grew feebly on lysine. Growth was much slower on single amino-acids.

—MALCOLM WOODBINE.

MANTOVANI, G. & QUARNA, E. (1953). Osservazioni su una enzoozia di aspergillosi in un allevamento di oche. **[An outbreak of aspergillosis in geese.]**—*Progr. Vet., Torino.* **8**, 209-210 & 214-216. **3035**

An outbreak of aspergillosis in geese was found to have resulted from accidental contamination of the eggs. The incidence was highest among newly hatched goslings.—I. MARTINI.

PRÉVOT, A. R., GORET, P., JOUBERT, L., TARDIEUX, P. & ALADAME, N. (1951). Recherches bactériologiques sur une infection purulente d'allure actinomycosique chez le chat. **[A study of an actinomycotic-like infection in cats.]**—*Ann. Inst. Pasteur.* **81**, 85-88. **3036**

In nine cats with purulent pseudo-actinomycotic infection *Actinobacterium baudeti* was not found in a single case, but fusiform anaerobes were isolated in all—*Fusocillus girans* (Prévot) in seven, *Fusiformis fusiformis* (Vincent) in two. The feline strains are apparently a variety of the normal strains pathogenic for man, found in appendicitis and colitis.

—W. R. BETT.

I. FREUNDT, E. A. (1952). **Morphological studies of the peripneumonia organism** (*Micromyces peripneumoniae bovis*).—*Acta path. microbiol. scand.* **31**, 508-529. **3037**

II. FREUNDT, E. A. (1952). **The nature of the " large bodies " in the peripneumonia organism** (*Micromyces peripneumoniae bovis*).—*Ibid.* 561-573. [In English.] **3038**

I. Studies on the organism of bovine contagious pleuro-pneumonia by direct, phase contrast and electron microscopy revealed true branching, which F. claimed to be an essential basis for classification. Growth intensity and the morphological picture were correlated with nutritional requirements. Large colonies with developed mycelia were best produced on media containing human serum.

II. The conditions under which " large bodies " develop in cultures of the organism of bovine contagious pleuro-pneumonia were investigated. Increasing the glucose concentration from 208 to 446 mg.% resulted in the formation of these bodies in 48 hours, accompanied by rapid reduction in viability. F. attributed the morphological changes to cell injury by the acid produced during fermentation.

—A. H. LINTON.

CECCARELLI, A. & FONTANELLI, E. (1952). Variazioni ematologiche in pecore naturalmente e sperimentalmente affette da agalassia contagiosa. **[Haematological variations in sheep naturally and experimentally infected with contagious agalactia.]**—*Zooprofilassi.* **7,** 545-556. [English, French, German and Spanish summaries.] **3039**

Changes in the r.b.c. and differential w.b.c. counts in the blood of 10 sheep naturally infected and in 6 sheep artificially infected with ovine contagious agalactia were observed for, in each case, a period of 3 months. In all the sheep there was increased monocytosis.—R.M.

WERKMAN, C. H. & WILSON, P. W. (1951). **Bacterial physiology.** pp. xiv+707. New York: Academic Press Inc., $9.80. **3040**

With the help of specialists from the various fields of bacterial physiology the editors have produced a good standard textbook on the subject. Among the chapter headings are:—Chemistry of the bacterial cell, The structure of the bacterial cell, Inheritance, variance and adaptation, Physical factors affecting growth and death, Bacterial enzymes and theory of action, Bacterial oxidations, Assimilation by bacteria, and The degradation and synthesis of complex carbohydrates. Being aware of the need to give space to the rapidly developing ideas and trends of current research, the authors have gone further than is usual in textbooks and added several chapters in which contemporary workers express their views on problems still awaiting solution.—A.S.

SPLITTER, E. J. (1953). ***Eperythrozoon parvum*, a filterable blood parasite of swine.** [Correspondence.]—*Nature, Lond.* **172,** 40. **3041**

E. parvum passed through Seitz EK and the fine diatomaceous-earth filters while *E. suis* was retained. S. summarized the differences between the two species in a table.

—JAS. G. O'SULLIVAN.

See also absts. **3153** (W.H.O./F.A.O. seminar on zoonoses); **3178** (helixin, an antibiotic against fungi and bacteria); **3226** (staining of bacteria); **3232** (report, Gt. Britain); **3233** (report, Australia); **3236** (report, Cyprus); **3237** (report, British Guiana); **3238** (report, Leeward Islands); **3242** (book, veterinary mycology).

DISEASES CAUSED BY PROTOZOAN PARASITES

NOBLE, G. A. & NOBLE, E. R. (1952). **Entamoebae in farm mammals.**—*J. Parasit.* **38,** 571-595. [Authors' summary modified.] **3042**

Faeces from 34 cattle, 28 goats, 30 pigs and 25 sheep were examined for entamoebae. More than 99% of the animals were infected, and a pronounced similarity was found among the amoebae from these hosts. It was concluded that specific names assigned to the uninucleate amoebae of the genus *Entamoebae* should be used as indications of host-identification rather than as evidence for morphological specificity, and that positive specific identity must wait until a thorough study of physiological characteristics can be made. The specific names suggested are: *E. bovis* in cattle, *E. polecki* in goats and pigs and *E. ovis* in sheep.

MATHIS, C. (1953). Le mythe de l'amibiase. **[Amoebiasis.]**—*Bull. Acad. nat. Méd.* **137,** 272-274. **3043**

M. stated that the term "amoebiasis" in human beings is a misnomer for a condition which he suggested might be more properly termed a bacterial enterocolitis, amenable to sulphonamides and antibiotics. He pointed out that two types of *Entamoeba* occur in the human intestine, namely the vegetative type *E. tetragena* which is inactive and a normal inhabitant of the human intestine, and the type *E. histolytica* which develops only when r.b.c. (released into the intestine following a haemorrhage due to indigestion, chill or helminth infestation) have been ingested. The parasite then becomes very mobile and destructive. The condition is made very severe in the Tonkin delta on account of a particularly aggressive bacterial flora. When affected soldiers were repatriated to France they recovered without treatment as this flora was replaced by the normal, less harmful flora.—F.E.W.

GYARMATI, E. (1952). La liquor-diagnose de la dourine. **[Diagnosis of dourine by examination of the cerebrospinal fluid.]**—*Acta vet. hung.* **2,** 251-257. [In French: Russian summary.] **3044**

In dourine the c.s.f. shows changes which, in conjunction with clinical and other laboratory examinations, are diagnostic. In most cases the quantity of the c.s.f. is considerably increased, but sometimes diminished, viscous and orange coloured. The cells are increased to several hundreds per cu. mm. Albumin is increased. The colloidal gold reaction is characteristic, and no case of dourine can be pronounced cured until this reaction has disappeared.

—A. MAYR-HARTING.

MORNET, P., LALANNE, A., HULIN, P., CISSOKO, M. & SIMPSON, S. (1952). Nouveaux essais de trypano-prévention chimiothérapique des troupeaux bovins d'exportation de Haute Volta (Afrique Occidentale française) sur la Gold Coast. **[Chemotherapy against trypanosomiasis in cattle travelling from French West Africa to the Gold Coast.]**—*Bull. Serv. Elev. Industr. anim. A.O.F.* **5,** Nos. 2-3-4. pp. 7-25. English translation pp. 27-41. 3045

Antrycide given at a dosage of 3·5 g. for animals weighing 200–300 kg. and 4·6 g. for those weighing more than 350 kg. proved markedly superior to dimidium chloride or maranyl (naganol) in controlling trypanosomiasis in cattle on the stock routes between Haute-Volta (French West Africa) and the Gold Coast. Protection appeared to be evident for at least three months following treatment.

—S. BRIAN KENDALL.

WEIKL, A., SCHWARZ, R. & MUNDT, W. (1953). Die Diagnose der Trichomonadenseuche beim Bullen. **[Diagnosis of *Trichomonas* infection in bulls.]**—*Tierärztl. Umsch.* **8,** 193-196. 3046

The authors examined 544 bulls for trichomonads, using techniques for collection and examination of preputial washings already described by previous workers, and detected 400 out of 413 infected bulls by microscopy, and a further 13 by cultural examination. For the latter, tubes containing a medium in powder form consisting of peptone, sodium phosphate, penicillin and streptomycin were used. 10 ml. preputial washings were added to each tube. The contents were then shaken to dissolve the powder.—M. L. CLARKE.

FEINBERG, J. G. (1953). **A method for the bulk growth of a parasitic protozoan.** [Correspondence.]—*Nature, Lond.* **171,** 1165-1166. 3047

The medium described by McEntegart was modified to produce a high growth level of a Liverpool strain of *Trichomonas vaginalis* and to support such growth in bulk volumes.

—S. F. M. DAVIES.

CHRISTL, H., JR. (1953). Über das Vorkommen einer Trichomonas sp. im Darm des Rindes bei chronischen Durchfällen. **[A species of *Trichomonas* in the intestines of cattle with chronic diarrhoea.]**—*Tierärztl. Umsch.* **8,** 205-208. 3048

C. described trichomonads isolated from the rectal contents and, at autopsy, from the alimentary tract of cattle with severe diarrhoea and emaciation of unknown origin. The flagellates apparently differed from *Tr. ruminantium;* their pathogenicity is uncertain.—M. L. CLARKE.

HARWOOD, P. D. & STUNZ, D. I. (1953). **A search for drug-fast strains of *Eimeria tenella*.**—*J. Parasit.* **39,** 268-271. [Authors' summary slightly modified.] 3049

Nearly 600 chickens were used to ascertain if three newly isolated strains of *Eimeria* had acquired resistance to nitrofurazone or to sulphaquinoxaline. The experiments indicate that these strains were fully susceptible to the drugs named. Under the conditions of these experiments, the prophylactic levels of nitrofurazone proved much more effective for preventing deaths from experimental coccidiosis than the prophylactic levels of sulphaquinoxaline.

CARMINATI, G. M. (1953). Studi di chimioterapia della toxoplasmosi sperimentale. **[Chemotherapy of experimental toxoplasmasis.]**—*Bol. Ist. sieroter. Milano.* **32,** 17-28. [Abst. from English summary.] 3050

Various chemotherapeutic substances were tested in experimental *T. gondii* infection in mice. Aureomycin, when given parenterally, had distinct therapeutic activity; terramycin had no activity, or was active in a very low degree. Chloramphenicol, bacitracin, subtilin, tyrothricin, lupulon and humulon were ineffective. Among the sulphonamides, the sulphapyrimidine compounds were the most active; sulphones had no activity or only a very slight one. The chemotherapeutic actions of aureomycin and sulphonamides differed; no synergism between aureomycin and the sulphonamides tested was observed. When aureomycin was given during the invasive phase of the disease, it had no influence on the course of infection, while sulphamethazine could bring about a clinical recovery.

Both aureomycin and sulphonamides act on toxoplasma infection at much higher dosages than those active against other infections; moreover they do not possess a really curative activity, inasmuch as they do not eliminate chronic infection.

Several compounds which proved to be inactive against toxoplasms were enumerated.

CHERNIN, E. (1952). **Parasitemia in primary *Leucocytozoon simondi* infections.**—*J. Parasit.* **38,** 499-508. [Author's summary modified.] 3051

A report of a study of the primary parasitaemia in ducklings naturally infected with *L. simondi* as a consequence of farm exposure in

northern Michigan. Immature gametocytes were found to attain a maximal concentration at about the fourth day of patency. Mature parasites were most commonly observed for the first time on the fifth day of patency, their number increasing with the simultaneous decline in immature gametocytaemia. Mature gametocytes generally reached their peak density by the ninth day of patency, while the absolute peak of parasitaemia (total of all forms) occurred on the sixth day of the patent period. The primary parasitaemia usually terminated within 30 days of the first appearance of parasites. A number of variations in the relative proportions of immature to mature parasites were noted and were briefly discussed. There was suggestive, but as yet inconclusive evidence that the immunity to this infection may be a very rapidly developing one.

STEPANOVA, N. A. (1948). **[Ophryoscolecidae in the intestines of cattle in Persia.]**—*Epidemiological-parasitological expeditions to Iran and parasitological investigations. Akad. Nauk. Moscow & Leningrad.* pp. 373-374. [In Russian.] **3052**

The ciliate fauna of the intestines of 4 cows and 5 sheep from Persia was examined. The cows harboured 27 species belonging to 10 genera and the sheep 30 species from 10 genera, there being a total of 38 distinct species. All were similar to those found in the U.S.S.R.; their names were listed.—F.A.A.

See also abstr. **3234** (report, East Africa); **3236** (report, Cyprus); **3237** (report, British Guiana); **3238** (report, Leeward Islands).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

HAQ, M. M. (1951). **Foot-and-mouth disease in the porcupine.**—*Proc. IIIrd Pakistan Sci. Conf. Dacca,* 1951. Pt. III. p. 89. [Only abst. given.] **3053**

Four young porcupines inoculated intradermally with F. & M. disease virus Type O developed lesions only at the site of inoculation. The presence of the virus in the lesions was confirmed by g. pig inoculation. It was suggested that porcupines may be able to spread the disease.—A.S.

ANON. (1952). **Foot-and-mouth disease.**—*Fmrs' Bull. U.S. Dep. Agric.* No. 666. pp. 19. [Issued April 1915, revised April 1952.] **3054**

This is an informative and general outline of F. & M. disease in Europe and America, giving an account of eradication methods adopted in the U.S.A.—G. V. LAUGIER.

BECK, W. & COHRS, P. (1953). Allergische seröse Glossitis des Rindes bei Maul- und Klauenseuche. **[Allergic glossitis in cattle used for foot and mouth disease vaccine production.]**—*Dtsch. tierärztl. Wschr.* **60,** 65-67. **3055**

Of the many cows used in the production of vaccine at the F. & M. disease centre at Lübeck the authors noted that a small number reacted atypically to inoculation. Within 8 hours after the intracutaneous inoculation of virus material into the tongue of these animals the connective tissue of the tongue and throat began to swell rapidly, sometimes growing so large as to occlude the entire buccal cavity. This swelling was associated with the migration of neutrophilic and eosinophilic granulocytes into the affected tissues. The authors suggested that this reaction might have resulted from hypersensitivity or allergy, though they could trace no history of previous infection or inoculation in most cases.—A.S.

COHRS, P., SCHULTE, F. & SCHNEIDER, B. (1953). Die pathologischen Veränderungen der nach Infektion mit dem Maul- und Klauenseuche-Virus abgestorbenen Hühnerembryonen. **[The lesions found in dead chick embryos after infection with foot and mouth disease virus.]**—*Mh. prakt. Tierheilk.* **5,** 8-13; 45-49. **3056**

Nine chick embryos, infected with F. & M. disease virus Type O, developed characteristic lesions of oedema and haemorrhage particularly in the head, breast, and abdominal regions. These lesions were due to changes brought about in the blood vessels by the virus. Severe degeneration in the heart muscles was associated with a higher content of complement-fixing antigen in the heart.—A.S.

I. RAMON, G. (1953). A propos de fièvre aphteuse et de grippe. Essais de virologie comparée. **[Foot and mouth disease and influenza.]**—*Bull. Acad. nat. Méd.* **137,** 123-128. **3057**

II. RAMON, G. (1953). A propos de fièvre aphteuse, de grippe et autres viroses. Etude d'immunologie et de prophylaxie comparées. Déductions d'ordre pratique. **[Comparative immunology and prophylaxis of foot and**

mouth disease, influenza and other virus diseases.]—*Ibid.* 206-215. 3058

I. A general discussion on the genesis of new types and variants of virus which occurs during outbreaks of F. & M. disease and to a lesser extent in epidemics of influenza, this phenomenon being compared with the development of drug resistance in pathogenic bacteria.

II. R. discussed the failure of vaccination to avert epizootics of F. & M. disease such as that of 1951-52 in Europe, on account of rapidity of spread, the appearance of variant types of virus, the difficulty of preparing vaccines against all types of virus in sufficient quantity, the short duration of immunity, weak immunogenic power of vaccines, inadequacy of techniques, and application under defective conditions. Vaccination had failed notably in France from the spring of 1952, although it alone in this one outbreak had cost the country three thousand million francs. R. suggested that a better and more lasting immunity might be obtained, both in F. & M. disease and in influenza, by the administration of two s/c doses of vaccine with a fortnight's interval, followed by a "booster" dose of polyvalent vaccine after 12 months.—F.E.W.

RAMON, G. (1953). La lutte contre la fièvre aphteuse. Nécessité d'un pacte international de coopération et d'assistance mutuelle. (Conclusion à une série d'études.) [**Control of foot and mouth disease. Need for international co-operation.**]—*Bull. Off. int. Epiz.* **39,** 263-276. [English translation pp. 271-276.] 3059

It was shown that it is well within the scope of the Office International des Epizooties to initiate all possible means of controlling F. & M. disease on an international scale. The necessity for adopting a slaughter policy with strict application of sanitary control measures was emphasized. R. stressed the need for an international covenant of co-operation and mutual assistance. He enumerated the essential factors required in such a covenant, and maintained that the O.I.E. is highly qualified to submit such a covenant for consideration.—G. V. LAUGIER.

HORRENBERGER, R. (1952). Recherche du virus rabique chez les rats de la ville d'Alger. [**Rabies in rats in Algeria.**]—*Arch. Inst. Pasteur Algér.* **30,** 371-375. 3060

Acting on an assumption that rabies can exist in an occult form in sewer rats, H. attempted to demonstrate the virus in brain material from live (and apparently healthy) rats captured by the Health Department of Algiers City. The virus could not be demonstrated in material from any of the 729 *R. decumanus* and 42 *R. alexandrinus* examined.

—F. B. LEECH.

FARRANT, J. L. & FENNER, F., (1953). **A comparison of the morphology of vaccinia and myxoma viruses.**—*Aust. J. exp. Biol. med. Sci.* **31,** 121-125. [Authors' summary copied *verbatim.*] 3061

The elementary bodies of myxoma and vaccinia viruses are found to be identical in the electron microscope. Both have the brick-shape characteristic of the pox viruses. The dimensions of the osmium-fixed particles are $286 \pm 15 \times 230 \pm 20 \times 75 \pm 10$ mμ and $305 \pm 15 \times 227 \pm 20 \times 80 \pm 10$ mμ for myxoma and vaccinia respectively. Myxoma particles contain dense pepsin-resistant central bodies similar to those demonstrated in vaccinia and fowl-pox viruses by other workers. These facts, together with the recent demonstration of a close similarity between the pathogenesis of myxomatosis and the pox diseases, indicate that myxoma belongs to the pox group.

PETRISHCHEVA, P. A. (1948). [**Vectors of Japanese B encephalitis and the anti-epidemic measures taken in hay-meadows.**]—*Epidemiological-parasitological expeditions to Iran and parasitological investigations. Akad. Nauk. Moscow & Leningrad.* pp. 299-308. [In Russian.] 3062

The yearly Aug.-Sept. outbreak of Japanese B encephalitis among haymakers who migrate for 6–9 weeks to the lush grasslands around parts of the Black Sea was described. Of the 3 responsible vectors *Culex bitaeniorhynchus* confines its attacks almost exclusively to animals, while *C. tritaeniorhynchus* and *Aedes esoensis* attack both animals and man. Among the recommended measures for the control of mosquitoes the most essential are the burning down of dry vegetation in the spring, the oil spraying of marshes and keeping the herbage cut in the swampy places.—F.A.A.

VERGE, J. & GORET, P. (1951). Les pseudo-poliomyélites animales. [**Pseudo-poliomyelitis of animals.**]—*Bull. Soc. Sci. vét. Lyon.* **53,** 183-194. 3063

The authors described neurotropic diseases of domestic animals which might be taken as analogous to poliomyelitis in man. They concluded that certain diseases of animals may be considered as a pseudo-poliomyelitis, particularly mouse encephalomyelitis, Teschen disease and dog distemper.—E.V.L.

CASALS, J. & BROWN, L. V. (1953). **Haemagglutination with certain arthropod-borne viruses.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 170-173. [Authors' summary modified.] **3064**

A simple, easily reproducible method for preparation of high-titre haemagglutinins with several arthropod-borne viruses was described. The method is based on the use of brains from new-born mice infected with virus as the source material, and on treatment with acetone and ether for the elimination of non-specific factors. With this method, stable specific haemagglutination was found associated with the following viruses: dengue (Hawiian type), dengue (New Guinea B type), Ilhéus, Japanese B encephalitis, Ntaya, West Nile (Egypt 101 strain), and yellow fever (Asibi strain). As yet, no agglutination has been found associated with Anopheles A, Eastern equine encephalitis, poliomyelitis (Type 2, MEF 1 strain), Russia Far Eastern encephalitis, and West Nile (original strain) viruses.

PATERSON, P. Y., POND, W. L., WARREN, J. & WEIL, M. L. (1953). **Encephalitogenic properties of crude and protamine treated rabbit and mouse brain suspensions.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 278-281. [Authors' summary slightly modified.] **3065**

Crude uncentrifuged rabbit or mouse brain tissue, combined with adjuvant, elicited acute encephalomyelitis in more than 50% of 99 g. pigs. The encephalitogenic activity of both types of brain tissue was decreased but not eliminated by low speed centrifugation. Protamine sulphate appeared to sediment most, if not all, of the encephalitogenic activity of both rabbit and mouse brain material.

MCLAREN, A. (1953). **Protective effect of aged vaccines on a neurotropic virus infection in mice.** [Correspondence.]—*Nature, Lond.* **172,** 38. **3066**

The author found that mice vaccinated with diphtheria alum precipitated toxoid and pertussis vaccine reacted to neurotropic viruses at a rate in inverse proportion to the age of the vaccine. Freshly prepared vaccines increased the susceptibility of mice to the virus, while 'aged' vaccines (4-months-old, stored at −3°C.) increased their resistance more than tenfold. —E. A. HIRSCH.

DICK, G. W. A. (1953). **Epidemiological notes on some viruses isolated in Uganda. (Yellow fever, Rift Valley fever, Bwamba fever, West Nile, Mengo, Semliki forest, Bunyamwera, Ntaya, Uganda S and Zika viruses.).** —*Trans. R. Soc. trop. Med. Hyg.* **47,** 13-43. **3067**

A brief historical account of the isolation of these viruses followed by a critical evaluation of the evidence of infection of human beings, other mammals and mosquitoes by them. D discussed the epidemiology of each virus in turn, and reported hitherto unpublished work on (1) experimental infection of monkeys with Bwamba fever virus, and of monkeys and black rats with Mengo virus, and (2) a survey of human and monkey sera for antibodies to Bwamba fever virus.—IAN DAVIDSON.

STANLEY, N. F., DORMAN, D. C., PONSFORD, J. (1953). **Studies on the pathogenesis of a hitherto undescribed virus** (*Hepato-encephalomyelitis*) **producing unusual symptoms in suckling mice.**—*Aust. J. exp. Biol. med. Sci.* **31,** 147-159. [Authors' summary modified.] **3068**

An account was given of an agent producing infection with unusual symptoms in unweaned mice. The agent is considered to be a hepato-encephalomyelitis virus which may cause jaundice, an oily hair effect, encephalomyelitis, retardation of growth, alopecia, conjunctivitis and death in unweaned mice. The virus was recovered from the faeces of an aboriginal child with pneumonia who later showed alopecia areata and conjunctivitis. The probable course of infection in mice is outlined and five phases of the disease established. The growth of the virus on the chorio-allantois of chick embryos was demonstrated. Complement-fixation tests with infected mouse brain antigen revealed antibodies in the patient's serum 11 months after isolation of the agent, and in the pooled sera of aboriginal natives from the Northern Territory.

BORDET, P. & QUERSIN-THIRY, L. (1951). In fluence favorisante du virus grippal sur les infections associées. **[Effect of influenza virus on associated infections.]**—*Ann. Inst. Pasteur.* **81,** 394-406. **3069**

The authors studied in g. pigs the effect of i/p inoculation of influenza virus on subsequent i/p inoculation of *Haemophilus influenzae*. Animals inoculated with a sublethal dose of 20–40,000 haemagglutinating units of the virus were 4–6 times more susceptible to *H. influenzae*, injected 15–30 min. or even 3 hours later, than were the controls. Increased susceptibility was not observed when the organism was injected 24 hours after the virus.—G. V. LAUGIER.

STECK, W. (1953). Studien über die infektiöse Anämie der Pferde. VIII. Beobachtungen über den Ablauf einer Enzootie. **[Equine infectious anaemia. VIII. The course of an outbreak in a village.]**—*Schweiz. Arch. Tierheilk.* **95,** 1-13. [English, French and Italian summaries.] 3070

S. described his observations over 7 years on an outbreak in a small village. Although a chronic clinical case was present for more than 6 years, no new clinical cases appeared after the first year and the symptoms of sub-lingual haemorrhage in other horses gradually disappeared. S. compared this with many other observations which have likewise revealed a short active phase followed by a long inactive phase.—A.S.

BOSHYAN, G. M. (1950). **[Equine infectious anaemia.]**—*Veterinariya, Moscow.* **27,** No. 6. pp. 8-14. [In Russian.] 3071

B. summarized results of his ten years of work, without giving details. He stated that decrease in the number of r.b.c. is a secondary effect: the virus attacks w.b.c. and the reticulo-endothelial cells, multiplying at the expense of their nucleoproteins and thus depriving the system of the means for creating r.b.c. He described a simple method of diagnosis using a blood-staining technique. He claimed to have grown bacterial and crystalline forms from purified E.I.A. virus on media, and also to have reversed the process. The crystalline form preserved its viability under severe physico-chemical and temperature tests. Both these non-virulent forms, he said, are widely disseminated in nature, the bacterial form being found in cattle, sheep, pigs, dogs, fowls and in each of the 400 horses examined, half of which appeared healthy. The 400 horses gave positive reactions to a blood test, and sera from the "healthy" ones infected healthy foals.

B. suggested that all horses are carriers but that they succumb only when under such stresses as undernourishment, overwork, attacks by other infections and by arthropods and helminths, or after being transferred to unsuitable climatic conditions.

A specific eye test was described using an allergen "anemin" prepared by B. from both the purified virus and its bacterial form. Of sick horses 98% gave positive reactions, confirmed by P.M. examination on 60 of them, but of 1,000 clinically healthy horses only 4 reacted positively. Recommended treatment included adequate feeding, oats being important, symptomatic treatment, and the injection of a vaccine prepared by B. [details not given.]
—F.A.A.

CILLI, V. & CORAZZI, G. (1952). Studio degli anticorpi ematici ad azione neutralizzante nel sangre di cavelli variamente vaccinati con virus neuro-mesodermotropo della peste equina. **[Behaviour of antibodies in the blood of horses vaccinated against African horse sickness.]**—*Bol. Ist. sieroter. Milano.* **31,** 434-447. [English and French summaries. Abst. from English summary.] 3072

The authors studied the behaviour of neutralizing antibodies in the blood of horses vaccinated with either A or B strains of the virus of African horse sickness. Inoculation of these viruses was followed by a slow formation of neutralizing antibodies which, while they rapidly disappeared from the blood stream of horses after the first vaccination, persisted for a long time, with rare exceptions depending on low antigenic capacity of the vaccine virus, in the blood of revaccinated horses, achieving in the latter a greater concentration.

Alternatively neutralization tests for A and B. strains of virus revealed the existence of immunologically distinct types and strain B was found to have a greater antigenic capacity than strain A.

CILLI, V. (1953). Observations sur le phénomène d'interférence dans la peste bovine. **[Observations on the interference phenomenon in rinderpest.]**—*Rev. Path. gen.* **53,** 562-567. 3073

C. studied the interference phenomenon in Arado and Begait cattle, which he inoculated with goat-passaged rinderpest virus either before exposure to virulent infection or in the early stages of virulent infection. Some evidence of interference between the two strains was obtained, though it was not possible to draw firm conclusions in the absence of precise knowledge concerning the resistance of the animals and the virulence of the infecting virus.—A.S.

HUDSON, J. R. (1953). Peste porcine. L'adaptation du virus au lapin et l'utilisation du virus adapté pour immuniser les porcs. **[Rabbit-adapted virus and immunization against swine fever.]**—*Bull. Off. int. Epiz.* **40,** May. pp. 60-73. [English summary modified.] 3074

H. described the adaptation of two strains of virulent swine fever virus to rabbits. One strain, which when first tested only survived during one passage, became adapted after six alternate passages through rabbits and pigs. The

other strain, which was originally recovered after three direct passages in rabbits but became lost in the fourth, could not be adapted by passaging twice or thrice in rabbits and then into a pig for nine rounds, but was eventually adapted after seven alternate passages. It appears that adaptation is favoured by the injection of a high concentration of virus into the rabbits and not influenced by the length of time that the virus is maintained in rabbit tissues between the returns to pigs.

Experiments with an American commercial virus-vaccine showed that the attenuated virus produced subclinical reactions in the majority of good healthy pigs, 2–5 months of age. A solid immunity developed. When one untreated pig was placed in contact with four inoculated pigs, it might develop an inapparent infection and become immunized. Further tests, however, indicated that the virus-vaccine used on "not so good" pigs could cause a heavy mortality. H. defined "not so good" pigs as pigs which are slightly stunted, have old inactive pneumonic or other chronic lesions, but which are feeding well and do not look like dying. These results appear to agree with the findings of the American Veterinary Medical Association's recent enquiry.

KÖRNYEY, S. & ELEK, P. (1952). Histologische Untersuchungen zur Pathogenese und Pathophysiologie der Teschener Krankheit (ansteckende Schweinelähmung). **[A histological study of Teschen disease.]**—*Acta vet. hung.* **2**, 143-161. [In German. Russian summary.] **3075**

From the distribution of infection in the tissues following intracerebral or nasal inoculation of the virus of Teschen disease into pigs, the authors drew conclusions concerning the pathogenesis and physiology of the disease. Histological changes were particularly marked in the tegmenta and periventricular grey matter of the diencephalon, mesencephalon, and rhombencephalon. The cerebellum was severely affected, the large motor cells and co-ordinating centres being preferentially attacked. On the basis of their findings the authors suggested that the disease be classified as a polioencephalitis standing in sharp contrast with the panencephalitic infections.—A.S.

LINDAUER, R. (1953). Beitrag zur Behandlung der Laryngoenteritis infectiosa der Katzen. **[Treatment of infectious laryngo-enteritis (? feline enteritis) in cats.]**—*Tierärztl. Umsch.* **8**, 51-52. **3076**

L. treated three cats which had both respiratory and enteritic symptoms resembling feline enteritis by 2 s/c injections each of 1 ml. of "pyrogenium" in the shoulder and 2 i/m injections in the hind leg of 0·3–0·5 ml. of "supronal" [composition of drugs not given] with a 24-hour interval. In each case there was marked improvement 24 hours after the first injections and recovery after 4–6 days; the animals subsequently remained healthy.

—E.V.L.

BARWELL, C. F. (1952). **Some observations on the antigenic structure of psittacosis and lymphogranuloma venereum viruses. I. Preparation and use in complement-fixation tests of antisera from different sources. II. Treatment of virus suspensions by various reagents and the specific activity of acid extracts.**—*Brit. J. exp. Path.* **33**, 258-267 & 268-279. [Author's summaries slightly modified.] **3077**

I. Complement-fixation antisera against the viruses of psittacosis and lymphogranuloma were prepared in g. pigs, rabbits and pigeons by repeated injections with yolk-sac suspensions of living virus. Sera containing group antibody only were obtained from some g. pigs by inoculating boiled washed psittacosis virus. G. pig sera to whole and to boiled psittacosis virus were used to study the complement-fixing activity of fresh mouse spleen suspensions of this virus. These preparations reacted feebly even in high concentration with sera containing only group antibody. Different batches gave variable results with sera against unheated virus; some fixed complement partially and no more strongly than with the group serum, but with other suspensions complete fixation was obtained. This activity deteriorated rapidly. Any of the unheated suspensions could be converted to potent antigens with group reactivity by boiling. Absorption of g. pig sera with boiled washed virus was used to demonstrate further that a heat-labile component was responsible for most of the complement fixation obtained with active unheated virus. Hyperimmune pigeon sera did not contain antibodies to normal yolk-sac and with them egg-grown virus was used for complement fixation. Full reactivity with boiled suspensions of either virus and variable degrees of cross-reaction with heterologous unheated virus were obtained. The specific character of the heat-labile component of each virus was demonstrated with pigeon sera from which the group antibody had been absorbed.

II. An enhanced complement-fixing activity of the group antigen, comparable with that produced by boiling or autoclaving resulted

from the treatment of unheated psittacosis or lymphogranuloma virus with phenol, dilute hydrochloric acid or papain. In these and in similar tests on boiled virus the group antigen was resistant to these reagents, but slight group activity was sometimes detected in virus-free supernatant fluids. In experiments with acid-treated suspensions these traces of soluble group antigen were precipitated on neutralizing the centrifuged fluid.

Ether treatment of unheated yolk-sac suspensions of psittacosis virus also produced enhancement of group activity. Ether extracts, separated from the aqueous layer after prolonged exposure, contained most of the group antigen.

Both heat-labile and heat-stable components were unaffected by trypsin.

High dilutions of potassium periodate rapidly and completely destroyed the complement-fixing power of boiled suspensions of both viruses. Such preparations were still capable of eliciting positive Frei reactions. This reagent effectively eliminated the relatively weak group activity of unheated virus suspensions, and specific complement fixation was obtained although high concentrations of virus were required for this purpose.

Various attempts to prepare suspensions of regular and stable reactivity were unsuccessful.

Extracts of psittacosis and lymphogranuloma viruses prepared by treatment with dilute hydrochloric acid did not react *in vitro*, but produced specific or largely specific skin reactions in human patients with psittacosis and lymphogranuloma.

SCHOFIELD, F. W. & HUTSEN, L. R. (1952). **The isolation and identification of the virus of Newcastle disease in Trinidad.**—*Canad. J. comp. Med.* **16**, 415-418. 3078

The virus of N.D. was isolated from chicks in Trinidad, identified by injection of chickens, pigeons and ducks, and later confirmed by serological methods.—R. GWATKIN.

DELPY, L.-P. & HARS, E. (1953). Recherches sur la vaccination contre la maladie de Newcastle et la variole par virus vivants associés. **[Immunization against Newcastle disease and fowl pox with a mixed live vaccine.]**—*Bull. Acad. Vét. Fr.* **26**, 175-187. 3079

Fowl pox virus cultured on developing eggs and an American strain of N.D.V. of low-virulence were used. The method of assessing the titre of the material was based on the minimum lethal or infective dose for a chick embryo. The mixture was dried and lyophilized, and reconstituted before use.

Birds vaccinated by intramuscular inoculation or by the stab method were solidly immune to both diseases after nine months.—D. LUKE.

KIRKPATRICK, C. M. & MOSES, H. E. (1953). **The effects of streptomycin against spontaneous quail disease in bobwhites.**—*J. Wildlife Mgmt.* **17**, 24-28. [Authors' summary modified.] 3080

When streptomycin was added to the drinking water of adult game-farm bobwhite quails among which serious losses from enteritis were occurring, losses over a period of 19 days were 4·3%, compared with 21·4% among others given untreated drinking water. When streptomycin was added to the mash fed to newly-hatched quail, the percentage mortality was only one-eighth of that which occurred in a control group fed untreated mash.—A.S.

MOOLTEN, S. E. & CLARK, E. (1952). **The red blood cell as a vehicle of virus transport. I. Isolation and identification of blood-borne viruses. II. Role of blood-borne viruses in autohemagglutination and in hemolytic anaemia.**—*Trans. N.Y. Acad. Sci.* **14**, 232-235; 235-238. 3081

I. The authors described various methods for isolating and identifying in the circulating blood viruses having red cell affinities in patients exhibiting auto-agglutination of both warm- and cold-reacting types and in patients with various types of acquired haemolytic anaemia.

II. Virus strains, characterized by red cell affinities including haemagglutination with or without haemolysis *in vitro* were isolated from the blood of patients with haemolytic aneamia and autohaemagglutination. In 5 cases the virus was identified as Newcastle disease virus. Specific agglutination of red cells of suspected virus-carriers by known specific antiviral immune sera may be useful for rapid detection of viraemia in the early phase of infection and in healthy carriers.—W. R. BETT.

GEY, G. O. & BANG, F. B. (1951). **Viruses and cells—a study in tissue culture applications. I. Cells involved—availability and susceptibility.**—*Trans. N.Y. Acad. Sci.* **14**, 15-24. 3082

For continuous tissue cultivation, synthetic media are not sufficient, and plasma, serum and tissue extracts still have to be used. With these, viruses may be introduced. The authors studied varous methods for destroying viruses in the components of natural media. For such investi-

gations it is important to use cultures of uniform cell strains, as different tissues differ in their sensitivity to a given virus. Thus, a culture of rat sarcoma is rapidly destroyed by Eastern equine encephalomyelitis virus, whereas the normal rat fibroblasts from which it is derived, are resistant. Important factors, not yet fully studied, are the localization of virus in the culture, and the presence of virus antibodies in components of the media.—A. MAYR-HARTING.

HORSFALL, F. L., JR. & TAMM, I. (1953). **Fractional dilution procedure for precise titration of hemagglutinating viruses and hemagglutination-inhibiting antibodies.**—*J. Immunol.* **70,** 253-259. [Authors' summary modified.] **3083**

The authors described a precise but relatively simple procedure for carrying out haemagglutination and haemagglutination-inhibition (H.I.) titrations with 5 viruses. In brief, the procedure is based on the use of a series of fractional dilutions of material under test in steps of 0·1 log unit. The method does not require any special equipment and yields titration endpoints which are closely reproducible. An analysis of the precision of the procedure relative to replicate titrations and the reproduction of absolute titres was presented. Both in haemagglutination and in H.I. titrations the precision of the results obtained with this technique is comparable to that yielded by photometric procedures.

SCHÄFER, W. (1953). Neuere Erkenntnisse über den Ablauf der Virusvermehrung und ihre Bedeutung für die Aufklärung des biologischen Autoreproduktionsmechanismus. **[Multiplication of viruses and the biological mechanism of autoreproduction.]** — *Berl. Münch. tierärztl. Wschr.* **66,** 165-171. [English summary.] **3084**

A review of the recent advances in the study of viruses, their composition and mechanism of reproduction.

The viruses form multiplying sub-units which produce new virus particles; nucleic acid of the desoxyribose type is essential in this process.—E. J. L. SOULSBY.

DICKINSON, L. (1953). **Evaluation of anti-viral compounds.**—*Analyst.* **78,** 283-287. [Author's summary modified.] **3085**

The desiderata and difficulties involved in any scheme of testing for anti-viral compounds were discussed and illustrated by the use of one such scheme making use of (a) a bacteriophage of *Pseudomonas pyocyanea,* (b) influenza-A virus, (c) vaccinia virus, (d) sheep abortion virus and (e) Rous sarcoma virus; (b) to (e) were *in ovo* tests. Extended to *in vivo* work, the tests covered influenza, ectromelia and mouse pneumonitis (Nigg) viruses in mice and Rous sarcoma virus in chicks. Correlation between the *in ovo* and mouse tests was found for Nigg virus.

See also abstr. **3153** (W.H.O./F.A.O. seminar on zoonoses); **3232** (report, Gt. Britain); **3236** (report, Cyprus); **3237** (report, British Guiana); **3238** (report Leeward Islands); **3243** (book, prevention of F. & M. disease).

IMMUNITY

MARRACK, J. R., & GRANT, R. A. (1953). **The interaction of antigens and antibodies in the presence of low concentrations of salt.**—*Brit. J. exp. Path.* **34,** 263-272. [Authors' summary modified.] **3086**

In a study of the minimum concentrations of sodium needed to cause flocculation in mixtures of antigen and antibody the minimum varied in different preparations of antigen and antibody; it depended on the pH of the mixture. The precipitation curve in low salt concentrations differed from that in the salt concentrations conventionally used. From light-scattering measurements it appeared that antigen and antibody molecules combine in low concentrations of salt although the solutions remained clear.

MOUNTFORD, D. (1953). **The quantitative complement fixation test with special reference to low titred sera.**—*Aust. J. exp. Biol, med. Sci.* **31,** 105-119. [Author's summary modified.] **3087**

The technique of Wallace *et al.* (1950) for the quantitative determination of the C′ fixing power of an immune serum was successfully applied to high titred serum. With low titred serum the test is no longer quantitative owing to the large error produced by the serum. An attempt was made to analyse the errors which occur with a high concentration of serum, but these were not found to be due to any one factor. Heating to 56°C. for 30 min. reduced the anticomplementary effect of the serum, without altering the antibody content. Heating to 62°C., for 15 min. produced the same results.

The slope of the complement-fixation curves appeared to be related to the concentration of antibody in the sample of serum, irrespective of whether the antibody had been produced in response to the first, second or third injection.

Eckert, E. A., Reeve, R. H. & Beard, J. W. (1953). **Measurement of complement fixation in small volumes.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 113-118. [Authors' summary modified.] **3088**

The authors described equipment and procedures devised for quantitative complement fixation in volumes of 12 cu.mm. The technique, reduced to a routine basis, was illustrated in the results obtained in the titration of complement and in the estimation of complement fixed by pneumococcus polysaccharide type VIII and its specific antiserum induced in the rabbit. With the procedures described the reaction can be carried out with antigen and antiserum in amounts of the order of 100-fold less than those required for the volumes usually employed, greatly extending the range for the study of material available only in small quantities.

Pereira, H. G. & Travassos, J. (1952). **A quantitative agglutination method for the study of the specific agglutination of micro-organisms.**—*J. gen. Microbiol.* **7,** 61-68. [Abst. from authors' summary.] **3089**

The degree of agglutination was estimated quantitatively from the sedimentation curves of suspensions of cultures of micro-organisms to which varying amounts of serum were added, these being compared with that of a control suspension without serum.

Rickettsia of the typhus group and their corresponding sera were clearly distinguished by the method described. Proteus OX 19 agglutinating sera of different origins (pregnant women, murine typhus and Proteus-immune rabbit), with the same agglutinating titre by the dilution method, were distinguished according to their origin by the quantitative method.

Delsal, J.-L. & Mir Chamsy, H. (1953). Purification et concentration des plasmas antitoxiques. I. Historique, techniques industrielles et choix de la méthode adoptée en Iran. **[Purification and concentration of antitoxic sera.]**—*Arch. Inst. Hessarek.* No. 7. pp. 75-103. **3090**

The authors discussed the literature since 1903 including the physico-chemical properties of the various protein constituents, the dissociation of the toxin-antitoxin flocculate, immunological characters, and purification by fractionation with cold alcohol. Details were given of industrial processes, those of Gt. Britain and the U.S.A. being chosen for adaptation to the needs of Iran.—E. Marsh Jones.

Barr, M. & Llewellyn-Jones, M. (1953). **Interference with antitoxic responses in immunisation with combined prophylactics.**—*Brit. J. Exp. Path,* **34,** 233-240. [Authors' summary slightly modified.] **3091**

Interference with the development of immunity to tetánus toxoid occurred in g. pigs immunized with two injections of a combined prophylactic containing another antigen to which they had some immunity. Similar interference occurred when the first injection was of the combined prophylactic and the second injection of tetanus toxoid alone, but not when the order of these injections was reversed. This interference was due to the secondary response to the other component of the combined prophylactic, and occurred whether this was T.A.B. vaccine or diphtheria toxoid. An injection of vaccine given 14 days before the second of two injections of a combined prophylactic containing the same vaccine resulted in an increased response to the toxoid component of the prophylactic.

Hayes, S. P. (1953). **The effect of cortisone on local antibody formation.**—*J. Immunol.* **70,** 450-453. [Author's summary slightly modified.] **3092**

Cortisone acetate mixed with bacterial antigens delayed local antibody formation in loose connective tissue of Swiss mice. Inhibition of appearance of cellular agglutinins was believed to be related to the anti-phagocytic action of this steroid hormone.

Stats, D. & Wasserman, L. R. (1952). **A critique on our knowledge of the etiology of hemolytic anemia.**—*Trans. N.Y. Acad. Sci.* **14,** 238-241. **3093**

The basic disorder in idiopathic acquired haemolytic anaemia in human beings is the patient's ability to form an antibody which has affinity for red cells. The Coombs test can detect substances other than antibody γ-globulin absorbed to red cells. The antibody is a pan-antibody. An antibody produced in response to damaged red cells may have marked effects on normal cells. Injury to red cells *in vivo* has not been demonstrated. Treatment of red cells with enzymes alters their agglutinability by viruses. Haemagglutinating viruses can be arranged in a series with mumps or Newcastle disease at the top and swine influenza at the bottom. Adsorption of specific polysaccharide may render red cells agglutinable. Other examples were given to indicate the large variety of *in vitro* techniques for modifying or altering antigens of red cells.—W. R. Bett.

MOLL, F. C., & HAWN, C. VAN Z. (1953). **Experimental hypersensitivity. The effect of adrenocorticotropic hormone, cortisone and adrenalectomy on the serological and histological responses in the rabbit following injections of foreign proteins.**—*J. Immunol.* **70,** 441-449. [Authors' summary slightly modified.] **3094**

The effect of adrenal activity upon the serological and histological changes of hypersensitivity was studied. Observations of the effect of A.C.T.H. on the histological and serological response of rabbits following the injection of heterologous serum protein indicated that although there was no alteration in serological pattern there was an inhibition of the histological changes in the glomeruli.

Cortisone inhibited antibody synthesis and the fall of the serum complement levels, and prevented the glomerulitis. Attempts to measure this effect by decreasing the amount of cortisone were unsuccessful. Adrenalectomized animals differed from controls which had had a simple laparotomy by a regular complement drop, antibody formation and histological changes. Operated controls responded less regularly. It was speculated that in rabbits A.C.T.H. interferes with the production of lesions by alteration of tissue reactivity and cortisone by the inhibition of antibody formation. Adrenalectomy produced a more marked response as measured by complement alteration, histological changes and antibody formation. A statistical analysis of the complement studies was presented.

See also absts. **2990-2991** (TB.); **2997** (swine erysipelas); **2998-2999** (pasteurellosis); **3007, 3010-3012** (Strain 19); **3055-3058** (F. & M. disease); **3066** (effect of aged vaccines on neurotropic virus infections in mice); **3072** (African horse sickness); **3073** (interference phenomenon in rinderpest); **3074** (swine fever); **3077** (antigenic structure of psittacosis and lymphogranuloma venereum viruses); **3079** (mixed vaccine against Newcastle disease and fowl pox); **3107** (Trichinella); **3168** (fatal syncope and anaphylactic shock); **3191** (report of the serum institute, Eritrea); **3238** (report(Leeward Islands).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

LUHRS. (1952). **German experiments to end warble fly. Success claimed after many failures.**—*Leath. Tr. Rev.* **105,** 477-478. **3095**

An abstract from the author's paper, read at the International Congress of the Hides and Allied Trades Improvement Society, at The Hague. Failure of derris preparations to kill larvae of *Hypoderma bovis* just before their emergence from the skin of the host was attributed to impermeability of the cuticle at that stage. He considered that the application of adhesive rubber patches to the skin swellings, before the cattle were turned out to pasture in the spring, was the most effective and simple method of destroying larvae with the minimum of subsequent damage to hides.—S. E. FOX.

LEWIS, D. J. (1953). **The Tabanidae of the Anglo-Egyptian Sudan.**—*Bull. ent. Res.* **44,** 175-216. **3096**

A general account of the tabanids of the Anglo-Egyptian Sudan, with information concerning the distribution and habits of particular species. Their presence is to a great extent responsible for the extensive migration of pastoral tribes and their animals to high ground with the onset of the rainy season. L. drew attention to the problem which will arise when economic development in the Sudan necessitates the permanent settlement of cattle in infested areas. —A.S.

FREDEEN, F. J. H., SPINKS, J. W. T., ANDERSON, J. R., ARNASON, A. P. & REMPEL, J. G. (1953). **Mass tagging of black flies (Diptera : Simuliidae) with radiophosphorus.**—*Canad. J. Zool.* **31,** 1-15. **3097**

The authors described a method for tagging large numbers of *Similium* flies. Larvae were held for 24 hours in a dilute solution of radioactive phosphorus and returned to non-radioactive water. Tagged larvae, pupae and adults could be readily detected with a Geiger counter. It was suggested that the method might be applicable to other insects.—R. GWATKIN.

BEKKER, P. M. (1953). **A blue tick resistant to B.H.C., but not to arsenic.**—*Fmg in S. Afr.* **28,** 119-120 & 136. **3098**

Groups of five cattle, infested with *Boophilus decoloratus,* were sprayed with 0·03% γ-isomer benzene hexachloride (B.H.C.), or 0·3% p.p.m. D.D.T. or dipped in 0·16% arsenious oxide and 100 p.p.m. B.H.C. at weekly intervals. It was observed after four weeks that the groups of cattle which had been sprayed with D.D.T., or dipped in arsenic plus B.H.C., were relatively free from ticks. However poor control followed the use of the B.H.C. spray. B. concluded that these ticks were resistant to to B.H.C., but susceptible to D.D.T. and arsenic.—D. W. JOLLY.

DUBININ, V. B. (1948). **[Ixodid ticks in the steppes of south-eastern Transbaikalia and their epidemiological role.]**—*Epidemiological parasitological expeditions to Iran and parasitological investigations. Akad. Nauk.*

Moscow & Leningrad. pp. 275-286. [In Russian.] **3099**

Only 4 species of ticks were found by D. in the region of south-eastern Siberia searched, *Ixodes persulcatus* and *Dermacentor silvarum* in the northern wooded parts and *I. crenulatus* and *D. nuttalli* in the steppes further south. *Hyalomma dromedarii* was not found in the region, except on one camel that came with a caravan from Mongolia. *D. nuttalli* appears to be the main vector of *Babesia caballi* and *B. equi* infections. Ticks also damage the skin and are held responsible for deaths among underfed young cattle and sheep in winter. The main carriers appear to be rodents, particularly the marmot, *Marmota sibirica.* Suggested preventive measure are:—the extermination of rodents, the collection of ticks from animals in winter, the grazing of pastures on alternate years and burning of the vegetation on fallow land. In areas where the marmot had been exterminated by fur-hunters, *I. crenulatus* had also disappeared.—F.A.A.

Graf, H., Hartmann, K. & Keusch, A. (1952). Über Eigenschaften des Hautraumes beim Schafe im Zusammenhang mit der Räudebekämpfung. **[Properties of the structure of the skin and fleece of sheep and control of scab.]** —*Schweiz. Arch. Tierheilk.* **94,** 90-102. [English, French and Italian summaries.] **3100**

An account of an investigation of the effects of trihexid (a wetting emulsion containing 1·25% of the γ-isomer of benzene hexachloride) on the air-dried sheep skin with its associated natural oils and dirt. The emulsion combined with the natural oil and penetrated deeply into the fleece, where it was retained to a considerable extent, the swelling of the skin providing evidence of this penetration. In practice, better results were obtained when the fleece was cleaned beforehand.—A.S.

See also abstr. **3064** (arthropod-borne viruses); **3234** (report, East Africa); **3235** (report, Seychelles); **3237** (report, British Guiana).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

Kendall, S. B. & Parfitt, J. W. (1953). **Life-history of *Fasciola gigantica* Cobbold 1856.** [Correspondence.]—*Nature, Lond.* **171,** 1164-1165. **3101**

Laboratory snails shed cercariae of *F. gigantica* 78 days after infection with miracidia. A lamb and a calf fed these cercariae excreted eggs of *F. gigantica* 110 days later.

—S. F. M. Davies.

Olivier, L. (1953). **Observations on the migration of avian schistosomes in mammals previously unexposed to cercariae.**—*J. Parasit.* **39,** 237-243. [Author's summary modified.] **3102**

Cercariae of *Trichobilharzia stagnicolae, T. physellae,* and *T. ocellata,* all schistosomes of birds, penetrated the skin, migrated to the lungs, and produced pulmonary haemorrhages in laboratory mice. The migration of cercariae of *T. ocellata* was also studied in hamsters, g. pigs, rabbits, and rhesus monkeys, and pulmonary haemorrhages were also found in these animals. Worms of all 3 species were recovered from the lungs of one or more of the 5 host species, but none was recovered from the liver.

Alves, W. & Clarke, V. de V. (1953). **A key to the families of some African gastropods.**—*J. trop. Med. (Hyg.)* **56,** 84-89. **3103**

A key for laboratory or field use, containing a glossary of terms illustrated by diagrams, and with two photographs. The authors emphasized that the key is not intended for malacologists nor for profound 'monographic' examination of the molluscs, but as a simple working key for non-experts, to enable them to identify the family of any given snail and to ascertain the genus of any snail implicated in the transmission of schistosomiasis.—F.E.W.

Talyuzin, F. F. (1948). **[Action of the extract of the tapeworm *Taenia saginata* on the rabbit intestine.]**—*Epidemiological-parasitological expeditions to Iran and parasitological investigations. Akad. Nauk. Moscow & Leningrad.* pp. 347-356. [In Russian.] **3104**

Effects produced by extracts and emulsions of *T. saginata* both on the intestine of anaesthetized rabbits and on isolated rabbit intestine were noted. Kymographs revealed that these substances had a stimulating action after an initial inhibition; this was also the case when either atropine, pilocarpine or acetylcholine was administered simultaneously with the extracts or emulsions.—F.A.A.

Smirnov, G. G. (1948). **[Helminths found in dogs in Central Asia.]**—*Epidemiological-parasitological expeditions to Iran and parasitological investigations. Akad. Nauk. Moscow & Leningrad.* pp. 341-346. [In Russian.] **3105**

S. stated that the literature of Central Asia recorded the examination of only 564 dogs for

helminth parasites and that these harboured 25 species of helminths of which 21 were intestinal. Their distribution was given in a table. *Dipylidium caninum* was the most widespread while *Echinococcus granulosus* and other tapeworms were uncommon. It was suggested that the distribution of many species of helminths is regional.—F.A.A.

FRICKERS, J. (1953). Strongyloidosis bij het varken. [**Strongyloidosis (associated with enteritis) in young pigs.**]—*Tijdschr. Diergeneesk.* **78,** 279-299. [English, French and German summaries.] 3106

Symptoms of experimental infestations with *Strongylus ransomi* in piglets are enteritis, vomiting, intestinal haemorrhages, abdominal pain and anaemia. The period between establishment of infestation and the excretion of eggs in the faeces is only three days. Treatment in Surinam consists of dietetic and hygienic measures only.—C. A. VAN DORSSEN.

ROSS, W. M. (1952). **A preliminary comparative study of test antigens prepared from adult and larval forms of** *Trichinella spiralis*. —*Canad. J. med. Sci.* **30,** 534-542. 3107

Antigens prepared from adult and larval *Trichinella* were employed in complement-fixation tests with serum from infested rabbits. Significant levels were found with the antigen prepared from adults, but higher titres were obtained throughout with antigen from larvae. The former had no advantage over the latter in the detection of early serum reactivity.

—R. GWATKIN.

BOURNS, T. K. R. (1953). **Trichinosis in the Vancouver area. Examination of 400 human diaphragms.**—*Canad. J. publ. Hlth.* **44,** 134-136. 3108

The incidence of human trichinosis in the Vancouver area is somewhat above 4%. The need for education on the cooking of pork, close inspection of pig feeding and rodent control is indicated.—R. GWATKIN.

ALICATA, J. E. (1951). **Effects of roentgen radiation on** *Trichinella spiralis*.—*J. Parasitol.* **37,** 491-501. 3109

A continuation of the author's studies on the dependability of X-irradiation for the destruction of trichinella in pork. Thin slices of trichinosed pork, sliced infested rat flesh, and trichinella larvae isolated from infested rats by pepsin digestion, were exposed to dosages of X-rays ranging from 1,000 to 700,000 r at 150 r/min. The treated material was then fed to young rats weighing 80–90 g., control rats being fed similar quantities of non-irradiated trichinosed meat and isolated larvae from the same samples. All were killed and examined after varying intervals. In the case of those fed meat or larvae irradiated at 30,000 r none of the larvae had reached maturity although they had undergone partial development during the first 48 hours. Following irradiations of 100,000 to 600,000 r some live larvae were found after 24 hours but none after 48 hours. Following irradiation at 700,000 r there was no development of larvae. Larvae kept refrigerated for a month after irradiation did not develop when fed to susceptible hosts. The author discussed the practical application of these findings.—F.E.W.

MAYHEW, R. L. (1952). **Studies on bovine gastro-intestinal parasites. XIX. Further studies in the use of small amounts of phenothiazine in pure infections of the nodular worm.**—*J. Parasit.* **38,** 525-531. 3110

In experimental infestations of 10 calves with *Oesophagostomum radiatum* it was found that a daily dosage of 0·5 g. of phenothiazine for at least 14 days was necessary in order to eliminate viable eggs from the faeces.—F.E.W.

WILSON, A. L., MORGAN, D. O., PARNELL, I. W. & RAYSKI, C. (1953). **Helminthological investigations on an Argyllshire hill farm.**—*Brit. vet. J.* **109,** 179-190. [Authors' summary modified.] 3111

The authors described the worm counts of 64 aged ewes, 32 adult wethers and 52 wether lambs from a typical Argyllshire hill farm. In general, the infestations of the west coast of Scotland have a very similar pattern to those in sheep on the southern uplands of Scotland, where the climatic and grazing conditions are very different. *Ostertagia* spp., *Trichostrongylus* spp. and *Bunostomum trigonocephalum* are important in Scottish hill sheep. *Haemonchus contortus* may, at times, occur in large numbers.

SOLIMAN, K. N. (1953). **Studies on the relationship of lungworm infestation in cattle and their liver vitamin A reserves.**—*Brit. vet. J.* **109,** 148-154. [Author's summary modified.] 3112

The vitamin A levels in livers of 31 cattle affected with parasitic bronchitis were assayed. These, when compared with the normal levels found by Stewart *et al.* [*V.B.* **22, 3470**], revealed a distinct fall in the liver reserves. Similar results were obtained from g. pigs experimentally infested with *D. filaria* and *D. viviparus* when compared with healthy controls. Admin-

istration of vitamin A may be therapeutically beneficial to cattle recovering from secondary broncho-pneumonia.

WOLFGANG, R. W. (1953). ***Pseudocruzia* (Oxyuroidea : Kathlaniidae) a new genus of nematode from domestic swine in India.**—*Canad. J. Zool.* **31**, 16-19. 3113

W. proposed that *Cruzia orientalis* from domestic pigs in India should be made the type of a new genus with *Pseudocruzia orientalis* as type species.—R. GWATKIN.

SCHWABE, C. W. (1949). **Observations on the life history of *Pycnoscelus surinamensis* (Linn.), the intermediate host of the chicken eyeworm in Hawaii.**—*Proc. Hawaii. ent. Soc.* **13**, 433-436. 3114

The burrowing cockroach, *P. surinamensis*, lives in the soil, and feeds by night on organic débris. The female forms an ootheca of 30–36 eggs, which is carried internally. The nymphs of the cockroach hatch within its body, from whence they are expelled through the genital opening.—D. W. JOLLY.

KARTMAN, L. (1953). **On the problem of non-infective microfilariae.**—*J. Parasit.* **39**, 296-299. [Author's summary modified.] 3115

In *Anopheles quadrimaculatus* females, fed upon a healthy dog that had been transfused with blood from a dog infested with *Dirofilaria immitis*, normal development of filariae was demonstrable up to three months later. Encapsulation of some infective larvae of *D. immitis* was noted in the mosquitoes during the first month following the transfusion. Failure of newly formed *D. immitis* and all but a few microfilariae of *Foleyella brachyoptera* (a parasite of frogs) to develop in the mosquito suggests that these parasites may have to undergo a short aging period before they attain maximum infectivity for the mosquito host.

YOUNG, M. D. & HAYNE, I. (1953). **Gongylonema infection in South Carolina. Report of a case.**—*J. Amer. med. Ass.* **151**, 40, [Abst. from authors' summary.] 3116

An immature specimen of *Gongylonema* (probably *G. pulchrum*) was found in the lip mucosa of a Negro woman in South Carolina. It appears that the most likely source of infestation was well water contaminated by an intermediate vector. This is apparently the first reported case of human infestation by this parasite from South Carolina and the eighth from the U.S.A.

KOZIĆ, L. (1952). **[*Capillaria plica* infestation in dogs.]**—*Vet. Glasn.* **6**, 517-519. [In Serbian. German summary.] 3117

K. found that over 31% of dogs in Belgrade were infested with *C. plica*. In heavy infestations the urine becomes cloudy and bladder epithelial cells, w.b.c. and r.b.c. are present in the sediment.—A.S.

See also absts. **3173** (anthelmintics); **3233** (report, Australia); **3235** (report, Seychelles); **3237** (report, British Guiana); **3238** (report, Leeward Islands); **3244** (molluscicides).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

COTCHIN, E. (1953). **Primary carcinoma of the choroid plexus of the fourth ventricle in a dog.**—*J. Path. Bact.* **65**, 257-258. 3118

An account of a carcinoma of the choroid plexus of the fourth ventricle in a 6-year-old dog.

DOERR, W. (1952). Über ein spontanes Bronchuscarcinom beim Hauskaninchen. **[Spontaneous bronchial carcinoma in a domestic rabbit.]**—*Frankfurt. Z. Path.* **63**, 82-87. 3119

A 6-month-old female Angora rabbit had two different tumours, diagnosed histologically as bronchial carcinoma (right lung) and round cell sarcoma (neck and visceral and parietal pleura).—E. COTCHIN.

PUGET, E. (1953). Sur les tumeurs du testicle, chez le chien. **[Tumours of the testicle in dogs.]**—*Rev. Méd. vét., Lyon et Toulouse.* **104**, 5-12. 3120

A discussion of the feminizing and other clinical effects of certain testicular tumours, of the underlying physiological mechanisms, and of possible post-operative hormonal therapy.
—E. COTCHIN.

ALBRINK, W. S. & GREENE, H. S. N. (1953). **The transplantation of tissues between zoological classes.**—*Cancer Res.* **13**, 64-68. [Authors' summary modified.] 3121

The authors described the results of heterologous transplantation of tumours and embryonic tissues between animals of different zoological classes. The Brown-Pearce rabbit carcinoma and the mouse neuroblastoma, C 1300 grew very well in the brains of 4-day embryo chicks, but, when transplanted to the brains of adult fowls, resulted in small growths eventually destroyed by intense lymphocytic reactions. Embryonic tissue, both homologous and hetero-

logous, elicited a similar but more pronounced reaction when transplanted to the brains of adult fowls. The Rous sarcoma grew well when transplanted to the eyes and brains of mice, g. pigs and rabbits. Chick embryonic tissue transplanted to the eyes and brains of mammals grew and differentiated without eliciting a foreign-body reaction on the part of the host. Although lacking this immunological characteristic of adult fowl tissue, they maintained their susceptibility to the virus agents of the Rous sarcoma and fowl pox by developing characteristic lesions in the transplantation site.

GREENE, H. S. N. (1953). **The induction of the Shope papilloma in transplants of embryonic rabbit skin.**—*Cancer Res.* **13,** 58-63. 3122

Papillomas are readily induced in adult domestic rabbits with material obtained from papillomas of cotton-tail rabbits, but attempts to induce papillomas in a second generation of domestic rabbits generally fail. It was shown that papillomas were successfully induced serially in embryonic rabbit skin implanted in the brains of rabbits, and could also be induced in transplants of embryonic rabbit skin in the brains of species (mouse, g. pig) normally resistant to the infecting agent. The significance of the findings was discussed.—E. COTCHIN.

KILHAM, L. & WOKE, P. A. (1953). **Laboratory transmission of fibromas (Shope) in cottontail rabbits by means of fleas and mosquitoes.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 296-301. [Authors' summary modified.] 3123

Fibroma virus can be transmitted from one cottontail rabbit to another by means of pin pricks, by fleas found on cottontail rabbits, and by the mosquito, *Aedes aegypti*. *A. aegypti* transmits fibroma virus under favourable circumstances, in as high a proportion of bites at 2 weeks following feeding as at 24 hours. Virus-carrying mosquitoes induced fibromas on the eyelid and close to the eye of one cottontail rabbit when given the opportunity to feed at will. Possible mechanisms involved in mosquito transmission were discussed.

TRAGER, W. & MCGHEE, R. B. (1953). **Inhibition of chicken tumor I by plasma from chickens infected with an avian malaria parasite.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 349--352. [Authors' summary slightly modified.] 3124

Two-week-old chickens were inoculated in the breast muscle with a suspension of chicken tumour I tissue. They were subsequently left untreated or given a series of intravenous injections of either normal chicken plasma or plasma from corresponding chickens which were near the peak of an acute infection with *Plasmodium lophurae*. On the day after the last treatment the tumours which had developed were weighed. In a series of 5 experiments, the mean tumour weight of the chickens left untreated or treated with normal plasma was 1·5 to 1·8 times greater than that of the chickens treated with malarious plasma.

STOCK, C C. (1953). **Negative data from experimental cancer chemotherapy studies [Symposium].**—*Cancer Res. Suppl.* No. 1. pp. 199. 3125

A collection of papers giving details of negative data obtained by various authors in experiments on the chemotherapy of cancer, together with an index of the empirical formulae of compounds tested.—C.M.S.

HUTT, F. B. & COLE, R. K. (1953). **The interaction of genetic and environmental influences affecting the incidence of avian leucosis.**——*Science.* **117,** 695-697. 3126

The authors considered the most important factors affecting mortality from leucosis to be the genetic constitution of the birds, their age at exposure to infection and the severity of that exposure. They discussed the possible interaction of these factors in the light of their experience with resistant and susceptible strains.

—D. LUKE.

NUTRITIONAL AND METABOLIC DISORDERS

MATTHAIAKIS, E. (1951). **[Existence of grass-sickness in Greece.]**—*Delt. Hellen. kten. Hetair.* **2,** 118-122. [French summary.] 3127

A ten year old gelding from the vicinity of Athens developed symptoms for which no cause could be discovered, including regurgitation with much saliva, and, on drinking, a flow of water from the nostrils mingled with food débris. Injections of strychnine sulphate and other stimulants had no effect. Daily doses of 20 ml. of 10% calcium gluconate solution intravenously were tried. Within ten days the symptoms progressively disappeared, and the horse was put back to work, but in about another ten days they reappeared with greater severity accompanied by muscular contractions and rapid emaciation. This time M. diagnosed subacute grass-sickness. There was no further

treatment, the horse having been sold. A month later it died. The whole duration of the illness was three months.—J. M. Tait.

Dougherty, R. W. (1953). **The continuing quest for the cause of bloat in ruminants.**—*J. Amer. vet. med. Ass.* **122,** 345-353. 3128

D. reviewed the literature published since the review article of Cole *et al.*, 1945 [*V.B.* **17,** 147]. He discussed seven current theories as to the cause of bloat, but concluded that none provided an adequate explanation. Two further hypotheses were presented for discussion. He stressed that the cause of death in affected cattle and the mechanism of eructation required further study. The treatment and prevention of bloat were briefly discussed.—E. A. Gibson.

Phillipson, A. T. (1953). **Digestion of cellulose by ruminants.**—*Biochem. J.* **54,** pp. iii-iv of Proceedings. [Only abst. given. Abst. from abst.] 3129

Facts on crude fibre digestion were given and it was suggested that inorganic ions may play a greater role than was thought heretofore.—John Seamer.

Bloom, S. & Knodt, C. B. (1953). **Aureomycin supplementation of rations for dairy calves.**—*J. Dairy Sci.* **36,** 633-636. [Authors' summary copied *verbatim*.] 3130

In this experiment the incorporation of an aureomycin supplement and crystalline aureomycin was made both in the milk replacement and/or in the calf starter under such conditions and by such means as approached a range of six practical farm feeding conditions. These treatments produced no great differences in the rate of body weight gains, in the consumption of calf starter and hay, or in the efficiency of feed utilization, even though the levels of aureomycin intake varied to about eight times above a minimum level of 20 mg. per calf per day.

Rusoff, L. L., Alford, J. A. & Hyde, C. E. (1953). **Effect of type of protein on the response of young dairy calves to aureomycin with data on the intestinal microflora.**—*J. Dairy Sci.* **36,** 45-51. [Authors' summary modified.] 3131

Calves fed an aureomycin-supplemented vegetable calf meal containing solvent-extracted soya bean oil meal as a main source of protein were more thrifty than calves fed a similar meal containing either "hydraulic" or degossypolized cottonseed meal as the main source of protein. Aureomycin-fed calves showed a growth increase of 10 to 20% over control calves at 16 weeks of age. A bacteriological study of the faecal contents indicated that the mode of action of aureomycin in stimulating calf growth was apparently not due to selective bacterial inhibition of the common bacterial groups of the intestines, namely, coliforms, enterococci, and *Clostridium welchii* types: other micro-organisms or other mechanisms may be involved.

Blount, W. P. (1953). **The feeding of antibiotics to pigs.**—*Proc. Brit. Soc. anim. Prod.*, 1952. pp. 50-57. 3132

A discussion of the results obtained with antibiotic-supplemented pig foods, and a consideration of the possible ways in which they may act.—J. T. Done.

Catron, D. V., Bennison, R. W., Maddock, H. M., Ashton, G. C. & Homeyer, P. G. (1953). **Effects of certain antibiotics and vitamin B_{12} on pantothenic acid requirements of growing-fattening swine.**—*J. Anim. Sci.* **12,** 51-61. 3133

The addition of vitamin B_{12} or pantothenic acid to a basic ration without antibiotics increased daily weight gains significantly, but no significant differences in gains or in feed efficiency were produced by added pantothenic acid when the ration contained adequate vitamin B_{12} or antibiotics.—J. T. Done.

Lillie, R. J., Sizemore, J. R. & Bird, H. R. (1953). **Environment and stimulation of growth of chicks by antibiotics.**—*Poult. Sci.* **32,** 466-475. 3134

Results of feeding experiments using aureomycin in Rhode Island Red and New Hampshire chicks supported the view that the enhanced growth response is due to the control of infection.—D. Luke.

Anderson, G. W., Cunningham, J. D. & Slinger, S. J. (1953). **Effect of aureomycin on the intestinal flora of chickens fed diets varying in protein content.**—*Canad. J. comp. Med.* **17,** 83-91. 3135

The pH of caecal contents decreased with age on all diets. Aureomycin also lowered pH. Caecal counts of most bacteria increased except on high protein level. Growth response decreased as protein content increased. Enterococci were reduced.—R. Gwatkin.

Miller, O. N. (1953). **An unrecognized nutritional factor (cornstarch) required by the duck.**—*J. Nutr.* **50,** 13-22. [Author's summary modified.] 3136

M. presented data which indicated the existence of a new and as yet unidentified factor important for the nutrition of the duckling. This

factor is found in maize starch and certain refinery products of glucose production as well as in crude glucose itself. A deficiency of this factor manifests itself in the duck by a greasy, unkempt appearance with poor feathering, poor growth rate, and acute pancreatic fibrosis.

GARTON, G. A. & NAFTALIN, J. M. (1953). **Massive oedema (exudative diathesis) in pigs fed on a diet rich in cod-liver oil.**—*Vet. Rec.* **65,** 262-263. 3137

Two pigs fed a ration rich in unsaturated fats for 7 weeks developed diarrhoea, melaena, ataxia and subcutaneous oedema. P.M. examination revealed a browning of the body fat, oedema of the mesentery, mesocolon, mesorectum and perirenal and subcutaneous tissues, a necrotic-haemorrhagic duodenitis and jejunitis, hyalination and necrosis of the myocardium and eosinophilic deposits in the kidney glomeruli.—J. T. DONE.

PAGÉ, E. & BABINEAU, L.-M. (1953). **The effects of diet and cold on body composition and fat distribution in the white rat.**—*Canad. J. med. Sci.* **31,** 22-40. 3138

High fat rations may be beneficial from an insulation standpoint but neither the fat content of the diet nor environmental temperature affects fat distribution in the body.

—R. GWATKIN.

BOUCKAERT, J. H. & OYAERT, W. (1952). **Fate of some nitrogen compounds in the rumen.**—*Zootechnia, Madrid.* **1,** pp. 21-29. [In English. French and Spanish summaries.] 3139

The toxicity of urea for sheep is due to its conversion to ammonia in the rumen, where it is absorbed. In experiments measuring the rate of absorption of ammonia by the rumen in anaesthetized sheep it was demonstrated that ammonia is readily absorbed, and that an increase in the alkalinity of the ruminal fluid produces an increase in the rate of absorption. Other experiments revealed that the diet of sheep is a critical factor, a given injection of urea into the rumen causing a high mortality among animals fed straw, while others on a diet of lucerne hay were unaffected. The latter were protected by the higher buffering capacity of their ruminal fluid, which prevented an increase in pH and the accelerated ammonia absorption associated with it. Other work comparing the protein contents of fodder and of ruminal fluid demonstrated an increase in protein value after fermentation by ruminal bacteria.—A.S.

OBEL, A.-L. (1953). **Studies on the morphology and etiology of so-called toxic liver dystrophy (hepatosis diaetetica) in swine.**—*Acta path. microbiol. scand.* Suppl. No. 94. pp. 87. [In English. German summary.] 3140

The author discussed the literature on liver damage in pigs and drew attention to the similarity between the P.M. findings in affected pigs and the liver injury seen in some cases in white rats fed diets low in vitamins A and B_1.

Toxic liver dystrophy is widespread in Sweden in pigs 3–15 weeks old and is seen particularly during October and November. They either die suddenly or after a short period of inappetence and dulness. Evidence of a digestive upset may be seen. Cyanosis is common. Anaemia is present in a high proportion of cases and icterus is usually absent. The liver is the main site of tissue damage and presents in typical cases a mottled mosaic-like pattern. Ulcerative changes in the mucous membrane of the stomach are also recorded.

The author gave details of histological changes in the liver, illustrated with excellent photographs, and described lesions in the artery walls very simlar to periarteritis nodosa in man. Among pigs fed a diet composed of 73% carbohydrates, 18% brewers' yeast, 6% cod-liver oil and 3% minerals the percentage of deaths from liver dystrophy is high. The liver injury could be prevented by substituting lard for the cod-liver oil and adding α-tocopherol. Chemically pure methionine and cystine also gave protection against liver damage. The experiments thus indicate that the addition of sulphur-containing amino acid or vitamin E protected against liver damage in pigs fed a low level of protein (yeast protein) and the presence of unsaturated fatty acids facilitated the development of this condition.

The author postulated that toxins derived from the gut are the direct cause of the condition. In the absence of sulphur-containing amino acids and vitamin E the ability of the liver to handle such toxins is diminished and liver injury follows. He proposed the name hepatosis diaetetica for the condition.

—D. LUKE.

VISEK, W. J., MONROE, R. A., SWANSON, E. W. & COMAR, C. L. (1953). **Determination of endogenous fecal calcium in cattle by a simple isotope dilution method.**—*J. Nutr.* **50,** 23-33. [Authors' summary modified.] 3141

Endogenous faecal calcium was estimated directly in normal cattle by a method which consisted of 10 daily intravenous injections of radiocalcium, comparison of the specific activities of blood and faeces taken on the 4th to 8th day after injection and routine determina-

tion of calcium balance. The daily endogenous faecal values for three 8-year-old dairy cows averaged 7 g. and for two yearling Hereford steers about 4 g. The endogenous faecal calcium was not significantly changed when the dietary calcium was varied from normal to a high level. In two animals on a low calcium diet a decrease in endogenous faecal calcium was indicated.

ARMSTRONG, W. D., JOHNSON, J. A., SINGER, L., LIENKE, R. I. & PREMER, M. L. (1952). **Rates of transcapillary movement of calcium and sodium and of calcium exchange by the skeleton.**—*Amer. J. Physiol.* **171,** 641-651. 3142

Estimation of ingested radiocalcium and radiosodium in plasma and blood of anaesthetized dogs indicated that binding of calcium by plasma protein did not impede transcapillary movement, which shewed the same rate for sodium as for calcium. Quantities of skeletal calcium and tissue sodium exchanged were estimated.—R. MARSHALL.

COMMON, R. H., MAW, W. A. & JOWSEY, J. R. (1953). **Observations on the mineral metabolism of pullets. IX. The effects of estrogen and androgen administered separately on the retention of calcium by the sexually immature pullet.**—*Canad. J. agric. Sci.* **33,** 172-177. 3143

Oestrogen plus androgen increased calcium retention to a significantly higher level than other treatments. Oestrogen or androgen produced a slight but significant increase. There was a significant interaction of oestrogen and androgen in regard to the large increase of retention brought about by these hormones.

—R. GWATKIN.

WOLBACH, S. B. & HEGSTED, D. M. (1952). **Vitamin A deficiency in the duck. Skeletal growth and the central nervous system.**—*Arch. Path. (Lab. Med.).* **54,** 548-563. 3144

All of 6 ducklings kept from their third day on a diet deficient in vitamin A became paralysed within 7 days and were killed on or before the eleventh day of the experiment.

Examination of sections revealed that the growth of the c.n.s. had proceeded normally within vertebrae cramped by the inhibition of endochondral growth. The resulting compression of the nervous tissue had caused distortion of the spinal column and the development of herniae from the brain into the sub-arachnoid and sub-dural spaces.—A.S.

MCDONNOUGH, L. T. (1953). **Vitamin E deficiency among dairy calves fed on coconut meal.**—*Vet. Rec.* **65,** 425-426. 3145

The first recorded cases of vitamin E deficiency in Jamaica occurred in two calves of a herd on excellent grazing and receiving a concentrate including coconut meal. It was suggested that the coconut oil destroyed the natural tocopherols, since no further cases occurred after omission of the meal from the ration.

—A. SEAMAN.

AGRAWALA, I. P., HUFFMAN, C. F., LUECKE, R. W. & DUNCAN, C. W. (1953). **A quantitative study of rumen synthesis in the bovine on natural and purified rations. III. Riboflavin, pantothenic acid and niacin.**—*J. Nutr.* **49,** 631-638. [Authors' summary copied *verbatim.*] 3146

The ingesta obtained from 7 trials with rumen fistulated calves were analyzed microbiologically to determine the capacity of rumen microorganisms to synthetize riboflavin, pantothenic acid and niacin from the medium components of a purified ration which contained urea as the only essential source of nitrogen. Quantitative evidence was obtained to indicate that the microorganisms were able to synthetize as much riboflavin and niacin, but only 50% as much pantothenic acid, within 6 hours after feeding as was found in the rumen of a calf maintained on a natural ration. The average of 7 trials showed that the calves on the purified ration synthetized 20, 31 and 154 mg. of riboflavin, pantothenic acid and niacin, respectively, within 6 hours after feeding. The increased amounts of these B vitamins found in the rumen of the calf on the natural ration were approximately equivalent to the amounts ingested in the feed.

KULWICH, R., STRUGLIA, L. & PEARSON, P. B. (1953). **The effect of coprophagy on the excretion of B vitamins by the rabbit.**—*J. Nutr.* **49,** 639-645. [Authors' summary modified.] 3147

Rabbits that are "collared" to prevent coprophagy or consumption of the soft faeces excrete approx. 29% more faeces than are recovered when coprophagy is not prevented. The difference is essentially accounted for by the soft faeces excreted. The latter contain between three and 4 times more niacin and riboflavin per g. than the hard faeces. Pantothenic acid is about 6 times greater in the soft faeces and vitamin B between two and three times the level in the hard faeces. On the basis of the difference in the faecal excretion of the vitamins or their recovery in the faeces of the rabbits while collared as compared with the amounts recovered while the animals were not

collared, it can be calculated that coprophagy provides the rabbit with about 83% more niacin, 100% more riboflavin, 165% more pantothenic acid and 42% more vitamin B than would be available if the soft faeces were not consumed.

The amount of vitamin B_{12} recovered from the faeces of rabbits fed a diet low in this vitamin was 221-fold greater than the intake. Values were given for the vitamin B_{12} content of the liver, kidneys and spleen of the rabbit.

Wiertz, G. (1953). De histologische activiteit van de schildklier bij nuchtere kalveren uit verschillende delen des lands. [**Activity of the thyroid gland in new-born calves from different parts of the Netherlands.**]—*Tijdschr. Diergeneesk.* **78**, 74-79. [English, French and German summaries.] **3148**

The histological structure of the thyroid glands of 627 new-born calves from different districts was studied. There was a parallel between the activity of the glands in the calves and the occurrence of goitre in man in the same environment.—C. A. van Dorssen.

Juhn, M. (1953). **A history of six years' thiouracil treatment in a Brown Leghorn hen.**—*J. Endocrin.* **9**, 155-159. [Author's summary slightly modified.] **3149**

An account of the history of a Brown Leghorn hen that received 0·5% thiouracil in the diet from 9 weeks of age until the bird was over 6 years old, when it was killed. During this period certain sections of the plumage exhibited a series of new and different pigments, while others remained relatively unchanged. The last category comprised the regions originally salmon; the feathers were structurally altered, but continued a duller shade of the oirginal hue. Feathers of the dorsal tracts and the smaller wing converts showed shades of orange and rust, resembling the modified male during the first 3 years. Thereafter, these feathers gradually became pale gold and small, but true female segments reappeared surrounding the shaft. Large wing and tail feathers were not greatly changed except the two most distal secondaries. At the end of the experimental period, proximally located, regenerating secondaries were laying down metallic black with some coarse brown mottling. Eggs continued to be laid, but intervals between clutches were greatly lengthened. Tests for fertility by artificial insemination were made at 3 and 6 years of age. Viable chicks were hatched at both times. Dissection of embryos and chicks in the second series showed greatly enlarged thyroids.

Possible explanations of the appearance of black feather pigments in remiges and rectrices during such long-continued treatment with thiouracil were discussed.

Visek, W. J. Monroe, R. A., Swanson, E. W. & Comar, C. L. (1953). **Calcium metabolism in dairy cows as studied with Ca^{45}.**—*J. Dairy Sci.* **36**, 373-384. [Abst. from authors' summary.] **3150**

When Ca^{45} was injected into two dairy cows in single doses at about 20 days prepartum, there was an indication that much of it was deposited in the mammary glands, where it remained until the animals were milked. Radiocalcium intravenously administered during lactation was deposited in the milk in amounts directly correlated with the total amount of milk calcium secreted. During 4 days after injection, a cow producing about 4 kg. milk per day secreted 32% of the Ca^{45} dose in one experiment and 19% in a second experiment. Another cow producing about 7 kg. per day secreted 34% of the Ca^{45} dose during the first 4 days after injection. Following oral administration these cows secreted from 4 to 6% of the Ca^{45} in their milk in 4 days at daily levels of milk production which were about the same as those following intravenous injection.

Talsma, D. (1953). Enige proeven met A.C.T.H. bij de behandeling van acetonaemie van het rund. [**Treatment of ketosis in cattle with A.C.T.H.**]—*Tijdschr. Diergeneesk.* **78**, 122-129. [English, French and German summaries.] **3151**

T. claimed that injection of A.C.T.H. had a favourable influence in 5 cows affected with ketosis *post partum*. Three injections of 50 mg. were given at 12-hourly intervals.

—C. A. van Dorssen.

Frías Frías, A. (1952). Alteraciones del equilibrío acídobásico en burras grávidas. Cetosis por hipoglucemia. [**Alterations in the acid-base equilibrium in pregnant donkey mares. Ketosis.**]—*Bol. Cons. Col. vet. Esp. Suppl. cient.* **6**, 445-453. **3152**

An account of ketosis in donkey mares during advanced pregnancy. The condition was due to the high consumption of glucose by the foetus and was characterized by acidity of the blood. Affected animals lost appetite and so aggravated the condition by taking in less carbohydrate. The author suggested that pregnant mares should be given fodder rich in carbohydrate, and that if ketosis still developed, sodium lactate could be injected intravenously both to raise the blood-sugar level and prevent acidity.—A.S.

See also absts. **3112** (vitamin A reserves in the liver of cattle infested with lungworms); **3180** (piglet mortality studies); **3236** (report, Cyprus); **3238** (report Leeward Islands); **3240** (report, U.S.A.); **3248** (book, biochemistry of carotenoids).

DISEASES, GENERAL

ANON. (1953). **WHO/FAO seminar on zoonoses. Bovine tuberculosis—brucellosis—leptospirosis—Q fever—rabies. Vienna, Austria 24-29 November 1952.** pp. 300. Geneva: World Health Organization Regional Office for Europe. [Mimeographed.] 3153

TUBERCULOSIS. K. A. Jensen (Copenhagen) read a paper on TB. of bovine origin in man, with reference to the situation in Denmark. J. N. Ritchie (U.K.) dealt with the control of TB. in cattle, referring to measures adopted in Britain. Descriptions of the single intradermal comparative tuberculin test and the eradication scheme of the Ministry of Agriculture were appended. Following a discussion, Jensen summarized methods for the isolation, identification and typing of *M. tuberculosis*. Laboratory diagnosis, as carried out at Weybridge, and the preparation of Weybridge P.P.D. tuberculins were described in a paper by H. H. Green.

BRUCELLOSIS. A paper by G. Renoux (Tunis) concerned some aspects of *Brucella* infection in man, and included statistics of 466 cases. A. W. Stableforth (U.K.) dealt with the *Brucella* organisms and the control of the disease, and also with laboratory methods of diagnosis.

LEPTOSPIROSIS. B. Babudieri (Rome) described the epidemiology of the disease in man and its occurrence in the Italian rice-fields and listed the species of *Leptospira*. Laboratory diagnosis and the serological classification of strains of *Leptospira* were dealt with by J. W. Wolff (Amsterdam).

Q FEVER. B. Babudieri (Rome) read a paper on epidemiology, diagnosis and prophylaxis of the disease in man. M. M. Kaplan (W.H.O.) surveyed the prevalence of Q fever in Austria, France, Germany, the U.K., Greece, Hungary, Italy, Yugoslavia, Portugal, Roumania, Spain, Switzerland and Turkey, and described survey methods. There followed a discussion on the need for a standard complement-fixation test, wild animals as reservoirs of infection, and other topics. Babudieri described in detail the technique of animal inoculation and the complement-fixation, agglutination, and intradermal tests.

RABIES. P. Lépine (Paris) gave a short account of rabies and its prophylaxis. Methods used to control rabies in dogs were described by M. M. Kaplan (W.H.O.). An excerpt from the report of the first session of the W.H.O. Expert Commission on Rabies was included. A. Zeissig (New York) described the trapping of foxes as a control measure. During the discussion, the vaccination of cattle in Morocco was mentioned. P. Lépine described in detail the preparation and examination of brain sections for Negri bodies and animal inoculation as used at the Pasteur Institute.—R.M.

PETROVIĆ, D. M. (1953). **[Statistics of eye diseases in domestic animals in Yugoslavia during 1941-51.]**—*Vet. Glasn.* **7**, 111-116. [In Serbian. German summary.] 3154

Examination of the records for the 10-year period under review showed that eye diseases constituted 5·63% of all the diseases of animals treated at the surgical Clinic of the Veterinary Faculty in Belgrade. The most important eye diseases observed, in order of frequency, were: iridocyclochoroiditis, simple conjunctivitis, follicular conjunctivitis, keratitis, corneal ulcer, prolapse of the bulb, protrusion of the nictitating membrane, cataract, and pterygium of the conjunctiva.—I. MARTINI.

WRIGHT, G. P. (1953). **Nerve trunks as pathways in infection.**—*Proc. R. Soc. Med.* **46**, 319-330. 3155

Neural lymphatics provide no direct pathway for the centripetal transmission of bacterial toxins and neurotropic viruses and there are substantial reasons against transportation *via* the axons, but tissue spaces which lie between the separate nerve fibres of a nerve trunk could serve as conduits for centripetally moving fluid and pressure gradients can be created which could propel fluid from peripheral muscular structures to the central nervous system.

Radio-activity from radio-iodinated rabbit serum proteins, injected into a gastrocnemius muscle in rabbits, can be subsequently traced, during ascent of the sciatic nerve trunk and tetanus toxin can be demonstrated to have been transported in the neural tissue spaces, but not in the axons, of motor nerve trunks but not of sensory nerves.

Neurotropic viruses have been shown to move centripetally in the motor and sensory nerve trunks. Viruses may be carried in the same way as tetanus toxin although the evidence in favour of transportation *via* the neural tissue spaces is still only circumstantial.—A. ACKROYD.

SPÖRRI, H. (1953). Die ersten Fälle von sog. Wolff - Parkinson - White - Syndrom, einer eigenartigen Herzanomalie, bei Tieren. (Beobachtungen bei 2 Rindern). **[The Wolff-**

Parkinson-White syndrome in two heifers.] —*Schweiz. Arch. Tierheilk.* **95,** 13-22. [English, French and Italian summaries.] **3156**

The heart syndrome described by Wolff, Parkinson & White (1930) is an abnormal electrocardiogram (E.C.G.) characterized by a short PR interval and prolonged QRS time, observed in cases of tachycardia in man. S. described a similar E.C.G. in two heifers which were otherwise apparently normal. The cause of this condition was uncertain.—R.M.

Stein, C. D., Manthei, C. A., Shuman, R. D. & Torrey, J. P. (1952). **Diseases of swine.** —*Fmrs' Bull. U.S. Dep. Agric.* No. 1914. pp. 30. **3157**

A pamphlet written for stock owners.

—J. T. Done.

Matthias, D. (1953). Ist der sogenannte plötzliche Herztod der Schweine ein anaphylaktischer Schock? [**Is fatal syncope of swine an anaphylactic shock?**]—*Mh. VetMed.* **8,** 221-227. **3158**

To investigate the suggestion that fatal syncope in swine might be of the nature of anaphylactic shock, M. induced anaphylaxis in g. pigs, one of which died, by repeated s/c injections of horse serum. The clinical course of the anaphylaxis so produced and the P.M. findings revealed no similarity with this fatal syncope.—A.S.

Field, H. I., Buntain, D. & Jennings, A. R. (1953). **Terminal or regional ileitis in pigs.** —*J. comp. Path.* **63,** 153-158. **3159**

An account of an outbreak of regional ileitis in pigs, in which the symptoms and lesions resembled those described by Emsbo [*V.B.* **22,** 1822]. The authors compared this condition with Crohn's disease in human beings, and suggested that the aetiology of the two conditions, although at present unknown, may be similar.

—R.M.

Lasserre, R. & Puget, E. (1953). Eléments de sémiologie vertébro-médullaire et radiculaire, chez le chien. [**Pathology of the vertebral column and spinal cord in the dog.**]—*Rev. Méd. vét.* **104,** 321-334. **3160**

Mainly a theoretical discussion on the distribution of the cutaneous sensory nerves in the dog, and the possible use of this information in ascertaining damage to the spinal column.

—B. G. Clarke.

Skelley, J. F. (1953). **Some common disorders of the cat.**—*Vet. Ext. Quart. Univ. Pa.* No. 131. pp. 89-93. **3161**

A well-classified account of the commoner ailments of the cat met with in practice. S. commented briefly on the symptoms and treatment of wounds, ear mange, ulcers, food allergy, anuria and dysuria, hairballs, coryza and feline pneumonitis.—B. G. Clarke.

Skelley, J. F., McGrath, J. T. & Mark, J. H. (1953). **Some nervous disorders in cats with clinico-pathological studies.**—*Vet. Ext. Quart. Univ. Pa.* No. 131. pp. 84-88. **3162**

A collection of case-histories from cats of various ages and with a variety of nervous symptoms, the disorders being arranged in the following groups according to origin:—(1) trauma; (2) inflammation of the nervous system including meningo-encephalitis attributed to infection with a yeast-like organism; (3) neoplasms involving the c.n.s. meningioma both cerebral and spinal, being the most common); (4) congenital anomalies including a case of cerebellar hypoplasia; and (5) miscellaneous. A detailed account of neurological and P.M. examinations was given.—B. G. Clarke.

Innes, J. R. M. (1953). **Comparative pathology. Liver-brain complexes in man and animals.**—*N. Amer. Vet.* **34,** 29-30. **3163**

The author briefly compared Wilson's disease of man to "Schweinsberg disease" of horses. Comparable disorders may be "Winton disease", "bottom disease" and Dunsiekte of horses and "Picton disease" of cattle [which are generally considered to be due to poisoning by species of *Senecio*]. Recent work on B.A.L. has suggested that this agent may have therapeutic value in Wilson's disease, in which copper is present in supernormal concentration in the brain and liver. Administration to five patients gave promising results with enormously increased urinary excretion of copper.

—L. M. Markson.

Molinari, P. (1952). La prova di Ucko nella diagnosi delle epatopatie e nella valutazione della funzionalità del fegato. [**The "Ucko" test in diagnosis of liver diseases.**]—*Profilassi.* **25,** 239-245. [French and Spanish summaries.] **3164**

M. examined the possible utilization of the Ucko test (a modified Takata-Ara test, a precipitation reaction produced by mercuric chloride in the serum of patients with certain liver diseases) in canine and bovine medicine. In cattle this test did not give useful results, but in the dog it appeared to have some value.

—I. Martini.

Davis, J. O., Lindsay, A. E. & Southworth, J. L. (1952). **Mechanisms of fluid and electrolyte retention in experimental preparations in dogs. I. Acute and chronic pericarditis.**—*Johns Hopk. Hosp. Bull.* **90**, 64-89. 3165

Experimental pericarditis was produced in 13 dogs by implantation of irritative cellophane into the pericardial cavity. Two phases of fluid and electrolyte retention followed: (a) an acute, characterized by oedema, which lasted 10 to 12 days and (b) a chronic phase, characterized by ascites, which lasted 6 months. Salt and water retention was accompanied by a decrease in haemoglobin and haematocrit values. Evidence of hyperfunction of the adrenal cortex was also obtained.—J. A. Nicholson.

Weinbren, K. (1953). **The effect of bile duct obstruction on regeneration of the rat's liver.** —*Brit. J. exp. Path.* **34**, 280-289. [Author's summary copied *verbatim*.] 3166

Regeneration of liver tissue after partial hepatectomy was compared in normal rats and in rats after varying periods of bile duct obstruction. Wet and dry weights of the residual liver tissue were measured and in selected cases, the ratio of parenchymal tissue to bile duct tissue was estimated, using a slide projection method. Regeneration of parenchymal cells did not appear to be diminished when bile duct ligation and partial hepatectomy were carried out at the same operation, nor when partial hepatectomy was performed 18–21 days after bile duct ligation.

Dempster, W. J. (1953). **A toxic syndrome observed in dogs with transplanted kidneys.** —*Acta med. scand.* **144**, 360-370. [In English. Abst. from author's summary.] 3167

D. described a toxic syndrome observed in dogs with transplanted kidneys; it was seen in autotransplanted kidneys only after infarction; in homotransplanted kidneys the syndrome followed some cytological change in the kidney favouring the localization of bacteria. The macroscopic and microscopic features of both auto- and homo-transplanted kidneys, removed for evoking a toxic syndrome, were described.

Of four antibiotics tested, only terramycin was effective in preventing the occurrence of the toxic syndrome in the majority of cases.

D. discussed the difficulties in the interpretation of the round cell infiltration which occurs in all homotransplanted kidneys; he suggested that the disintegration of the homotransplanted kidney may correspond to a process similar to an actively acquired immunity on the part of the host.

See also absts. **3247** (book, surgical diseases); **3250** (excerpts for veterinary practitioners).

POISONS AND POISONING

Sapeika, N. (1953). **Effect of dicoumarol on the ascorbic acid content of the liver and adrenal glands.**—*Brit. J. exp. Path.* **34**, 88-93. 3168

Though overdosage with dicoumarol in rats caused reduction of ascorbic acid levels in the liver and adrenal glands accompanied in many cases by death, usually with haemorrhage, administration of ascorbic acid did not prevent the effects. In g. pigs the level of dicoumarol tolerated was lower: when the low level of ascorbic acid achieved in dicoumarol overdosage was maintained in controls without dicoumarol, similar haemorrhage did not develop. The haemorrhagic effect of dicoumarol was not explained.—R. Marshall.

Lapčević, E., Penezić, B., Kozić, L. & Kosovac, A. (1952). Alimentarna intoksikacija konja vučjom jabukom. [***Aristolochia clematitis* poisoning in horses.**]—*Vet. Glasn.* **6**, 565-573. [In Croat. Abst. from German summary.] 3169

An account of poisoning in 10 horses given fodder containing *A. clematitis*. Among the symptoms were inappetence, yellow staining of the conjunctiva, changes in the blood picture, and the presence of kidney cells, w.b.c. and r.b.c. in the urine.—A.S.

Price, D. A. & Hardy, W. T. (1953). **Guajillo poisoning of sheep.**—*J. Amer. vet. med. Ass.* **122**, 223-225. 3170

Guajillo (*Acacia berlandieri*) is a bush plant which dominates many sheep ranges in Texas. During long periods of drought, when it provides the only available browse, sheep tend to develop symptoms of ataxia and may die, though they usually recover when provided with a different diet. The authors produced the symptoms experimentally in a sheep which they fed forcibly with the flowers and leaves of the plant. The animal recovered within 3 months when placed on a diet of alfalfa hay and cotton-seed meal, but later developed ataxia and died when force feeding was resumed.

A. berlandieri is not mentioned in the standard lists of plants toxic to animals, although its poisonous properties are well known in the districts where it occurs.—A.S.

COLLIER, H. B. & ALLENBY, G. M. (1952). **Enzyme inhibition by derivatives of phenothiazine. IV. Inhibition of succinoxidase activity of rat-liver mitochondria.**—*Canad. J. med. Sci.* **30**, 443-446. 3171

The succinoxidase activity of rat-liver mitochondria was strongly inhibited by phenothiazine, phenothiazine sulphoxide and phenothiazone. Thionol was only slightly inhibitory. Cytochrome oxidase activity was not inhibited.

—R. GWATKIN.

PORGES, N. (1953). **Snake venoms, their biochemistry and mode of action.**—*Science.* **117**, 47-51. 3172

P. described the geographical distribution of the important families of poisonous snakes, and divided the venoms with coagulant properties into two main groups according to their action on pure fibrinogen. The spread of venom in the victim's body is impeded by the intercellular gel of the connective tissues, but many venoms contain hyaluronidase which rapidly overcomes this resistance. The invaded tissues may in turn inactivate hyaluronidase by the liberation of anti-invasin I, but this further defence can be overcome by pro-invasin I, a factor present in many venoms.—A.S.

See also absts. **3163** (liver-brain complexes in man and animals); **3233** (report, Australia).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

OELKERS, H.-A. (1950). Pharmakologische Grundlagen der Behandlung von Wurmkrankheiten. **[Pharmacology of anthelmintics.]** pp. xii+243. Leipzig: S. Hirzel. 3rd Edit. DM. 12.80. 3173

The author thoroughly revised and partly recast this book in the light of work on chemotherapy which had been carried out in the eight years since the first edition was published. He included short descriptions of the trematodes, cestodes and nematodes, of both tropical and temperate zones, affecting domestic animals and man. There is a chapter on anthelmintics in general including tables of efficiency of the more common agents against various groups of parasites. The main part of the work is devoted to the special pharmacology of anthelmintics and deals with the properties and actions of fifteen aliphatic and twenty aromatic compounds, eight dye-stuffs, the essential oils, alkaloidal drugs, and a number of other unclassified drugs, such as iodine, sodium fluoride and hydrogen peroxide. A chapter deals with the treatment of helminth infestations in man and animals.

There is much information clearly and concisely presented. There are numerous references.

In several cases an old scientific name is given first followed by the generally accepted new name in brackets, wheras it would have been more correct to have given the synonyms in the brackets. On p. 192 one finds *Schistosoma spindolis* instead of *S. spindale* and on p. 195 there is *Syngamus trachealis* instead of the now generally accepted *S. trachea;* on p. 23 there is *Wucheria bancrofti.* There are also other slight discrepancies, *e.g.* in the dosage of nemural for dogs; on p. 185 it is given as $\frac{1}{4}$-$\frac{1}{2}$ tablet for toy dogs, whilst on p. 226 it is said to be one tablet per 8 lb. body weight.

Apart from such faults as these, the work forms a useful and handy book of reference for the veterinarian.—M. L. CLARKE.

DŽINIĆ, S. (1951). Permeabilitet zglobne čahure teleta pod uplivom C vitamina, rutina, acid salicylimuma, amidopyrina i antistina. **[The comparative permeability of the articular capsule of the calf under the influence of vitamin C, rutin, salicylic acid, amidopyrine and antistine.]**—*Veterinaria, Sarajevo.* **1**, 16-19. [English summary.] 3174

The permeability of the articular capsule was lessened by vitamin C, rutin, amidopyrine, antistine and above all by salicylic acid. A similarity appears to exist between these drugs and other antirheumatic preparations (cortisone, etc.), which also depress the permeability of the articular capsule.—I. MARTINI.

CLARK, R. & WESSELS, J. J. (1952). **The influences of the nature of the diet and of starvation on the concentration curve of sulphanilamide in the blood of sheep after oral dosing.**—*Onderstepoort J. vet. Res.* **25**, pp. 75-83. 3175

In sheep fed a lucerne diet maximal blood sulphanilamide concentration is achieved earlier than in sheep fed hay. Deprivation of food on any dietary regimen increased drug efficiency by delaying excretion, absorption being unaffected. These results demonstrate the importance of diet in ruminant pharmacological determinations using the oral route.

—JOHN SEAMER.

TACKING, R. (1953). **The effect of penicillinase-producing bacteria on the treatment of mixed infections in rabbits with penicillin.**—*Acta path. microbiol. scand.* **32**, 375-382. [In English. Author's summary copied *verbatim*.] 3176

The effect of penicillin on an infection in rabbits which is ordinarily controlled by penicillin therapy is neutralized if penicillinase-producing, non-pathogenic bacteria are present in the focus of infection.

ANON. (1953). **Sensitisation of nursing staffs to antibiotics. Memorandum from the Ministry of Health.**—*Lancet.* **265**, 33-35. 3177

Between 1% and 5% of nurses and others using antibiotics become sensitized. Most commonly the symptoms are skin lesions on hands, arms, and face, and conjunctivitis, pointing to local contact as the major factor. Recommendations are that gloves should be worn for injections and that air should not be expelled from the syringe while this is at eye-level, since the bubbles bursting at the needle-tip liberate a fine spray.—A. SEAMAN.

LEBEN, C., STESSEL, G. J. & KEITT, G. W. (1952). **Helixin, an antibiotic active against certain fungi and bacteria.**—*Mycologia.* **44**, 159-169. 3178

Working with an actinomycete of the genus *Streptomyces* to which they were unable to assign a specific name, the authors isolated an antibiotic for which they proposed the name "helixin", though it was realized that more than one antibiotic substance might be present in it. In agar streak-tests the substance proved to be active primarily against fungi, and at concentrations between 0·47 and 15 μg. it inhibited the growth of each of a number of fungi tested as well as that of several bacteria.—A.S.

BOOTH, N. H. & RANKIN, A. D. (1953). **Studies on the pharmacodynamics of curare in the horse. I. Dosage and physiological activity of d-tubocurarine chloride. II. Curare as an adjunct to chloral hydrate anesthesia.**—*Amer. J. vet. Res.* **14**, 51-55 & 56-59. 3179

I. The maximum safe dose of curare for horses seemed to be $\frac{3}{8}$ unit per lb. body wt., but this paralysed only 5 out of 10 horses on which it was tested. Doses above $\frac{3}{8}$ unit were sufficient to paralyse every animal tested. Curare had no effect on blood pressure until partial to complete respiratory paralysis had occurred, when blood pressure rose in all the animals, falling again following artificial respiration. Doses up to and including the established toxic dose for each horse did not inhibit spinal reflex activity.

II. Curare at doses up to and including the toxic dose did not abolish spinal reflex activity when given following the administration of chloral hydrate, nor was there a sufficient suppression of activity to be of use in surgery. The results indicated that curare is not of value as an adjunct to chloral hydrate anaesthesia. —A.S.

See also absts. **2973** (gangrenous mastitis); **2974** (antibiotics); **2975** (antibiotics from tree leaves); **2986** (isoniazid); **2987** (antituberculous drugs); **2994** (mastitis); **2995** (ulcerative lymphangitis); **2996** (glanders); **3000** (pasteurellosis); **3001** (fowl cholera); **3008** and **3013** (brucellosis); **3018** (leptospirosis); **3024** (effect of antibiotics on *Cl. welchii*); **3045** (trypanosomiasis); **3050** (toxoplasmosis); **3076** (feline enteritis); **3080** (quail disease); **3244** (book, (molluscicides).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

POMEROY, R. W. (1953). **Studies on piglet mortality. I. Effect of low temperature and low plane of nutrition on the rectal temperature of the young pig.**—*J. agric. Sci.* **43**, 182-191. 3180

P. studied the body temperature of piglets at the time of birth, during the first hours of life, and during temporary exposure to cold. Piglets suckled in a warm environment had a lower fall of body temp. when exposed to cold, and a quicker recovery to normal, than those suckled in a cold environment.—R. A. HUCK.

SEEBAUER, K. (1953). Abortus und Laktation. **[Lactation after abortion.]**—*Dtsch. tierärztl. Wschr.* **60**, 222-225. 3181

Following abortion cows enter into lactation but produce less milk than after normal calving. After abortion the daily yield from a given animal is quite closely proportional to that in normal lactation (on the average 34 ± 14% lower). Abortion lactations from Feb. to Oct. are markedly less productive than those at other times of the year. The yield is however independent of the duration of pregnancy before abortion.—A.S.

CROSS, B. A. (1953). **Sympathetico-adrenal inhibition of the neurohypophysial milk-ejection mechanism.**—*J. Endocrin.* **9**, 7-18. 3182

Intravenous injection of 5–50 μg. adrenaline into lactating doe rabbits interfered with milk ejection to the extent that the young were

unable to withdraw more than three quarters of the normal yield of milk. When 5 μg. were given i/v before the administration of 50 milliunits of posterior pituitary extract the milk ejection response to the latter was suppressed in anaesthetized rabbits with cannulated teats. A dose of 5 μg. of adrenaline also inhibited the milk ejection response to electrical stimulation of the supraoptico-hypophyseal tract when injected before stimulation or during the latent period of the response. Electrical stimulation of the posterior hypothalamus produced dilation of the pupils, exophthalmos, and inhibition of the milk-ejection response to an injection of oxytocic extract. It was concluded that the emotional inhibition of milk ejection is connected with an activation of the sympathetico-adrenal system.—A.S.

Grafflin, A. L. & Bagley, E. H. (1952). **Studies of hepatic structure and function by fluorescence microscopy.** — *Johns Hopk. Hosp. Bull.* **90**, 395-438. 3183

Studies of the excretion of fluorescent substances by the liver of mice, rats and monkeys showed that biliary excretion is fundamentally the same in mammals as in the frog. The bile canaliculi at all times maintain their identity as discrete tubes which form a continuous, never-ending, polygonal meshwork. In mammals, the hepatic laminae are one cell thick. No refractory period in the secretory activity of the liver was encountered.—J. A. Nicholson.

de Duve, C. (1953). **Glucagon. The hyperglycaemic glycogenolytic factor of the pancreas.**—*Lancet.* **265**, 99-104. 3184

Glucagon is a polypeptide which has its origin in the pancreas in the α cells of the islets of Langerhans. It is glycogenolytic in action and can therefore be regarded as an insulin antagonist.—R. Marshall.

Rogers, H. J., Weidmann, S. M. & Jones, H. G. (1953). **Studies on the skeletal tissues. III. The rate of exchange of the inorganic phosphate in different bones and parts of bones in various species of mammal.**—*Biochem. J.* **54**, 37-42. 3185

Using labelled phosphorus the authors compared the rates of exchange of phosphate in the cortical layers of the bones of cats, rats, and rabbits. The rate of exchange in cats was much lower than that in rats and rabbits, with the exception of the cancellous metaphyseal layer. In the rabbit tracer phosphorus was very unevenly distributed within the cortex of femoral and tibial bones. The layer next to the marrow was much more active, and the subperiosteal layer slightly more active than the rest of the cortical tissue. The authors discussed the significance of this distribution.—A.S.

Simonnet, H. & Thieblot, L. (1951). Recherches expérimentales sur la physiologie de la glande pinéale. **[Physiology of the pineal gland.]**—*Acta endocrinol.* **7**, 306-320. [In French.] 3186

The effect of removal of the pineal gland was studied in young rats. Removal was followed in the majority of animals by an increase in size and rapidity of development of the reproductive organs. It was concluded that the pineal gland produces a hormone which restrains the secretion of testosterone in the male and retards luteinization in the female.

—J. A. Nicholson.

Hodges, J. R. (1953). **The effect of desoxycorticosterone acetate on the release of adrenocorticotrophin by the pituitary gland.** —*Brit. J. Pharmacol.* **8**, 242-247. [Author's summary modified.] 3187

Unilateral adrenalectomy under ether anaesthesia caused marked ascorbic acid depletion in the intact adrenal glands of normal rats. Maximal effects were produced one to two hours after the performance of the operation. Intraperitoneal injections of deoxycortone acetate (DOCA) in arachis oil caused no fall in the adrenal ascorbic acid concentration in rats, when the doses of DOCA employed were not greater than 10 mg. per 100 g. body wt. Larger doses of DOCA administered by the i/p route caused adrenal ascorbic acid depletion. S/c injections of DOCA in arachis oil in doses of up to 20 mg. per 100 g. caused no fall in adrenal ascorbic acid concentration. Pre-treatment of rats with large doses of DOCA tended to prevent the fall in adrenal ascorbic acid caused by unilateral adrenalectomy. The adrenal ascorbic acid depletion, which normally followed the operation, was completely prevented by (a) the i/p injection, 1–4 hours previously, of 15 mg. DOCA, and (b) the s/c injection 16–32 hours previously, of 20 mg. DOCA per 100 g. body wt.

Zoger, S. (1952). **Observations on the influence of cortisone on tissue response to injury.**—*Yale J. Biol. Med.* **25**, 202-213. 3188

A study comparing the injury caused by the i/m injection of turpentine into adrenalectomized rats and into untreated controls. The results indicated that the main effect of cortisone was a delay in connective tissue repair, possibly due to decreased capillary growth.—R. Marshall.

CLARK, W. M. (1952). **Studies on a chemical continuum.**—*Johns Hopk. Hosp. Bull.* **90,** 228-253. 3189

Studies of proton exchanges, oxidation-reduction equilibria and the combination of prosthetic groups with proteins and other simpler substances show that such reactions are not isolated processes but become integrated into what may be termed a chemical continuum. Thus in a complex system containing potential oxidants and reductants, there is an oxidation-reduction-acid-base continuum involving inseparable electron and proton transfers as well as oxygen.—J. A. NICHOLSON.

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

BARNETT, S. A. & SPENCER, M. M. (1953). **Responses of wild rats to offensive smells and tastes.**—*Brit. J. Anim. Behav.* **1,** 32-37. 3190

The authors devised experiments to observe the reaction of wild rats to various substances placed under, or mixed with, their food. The presence of aniseed oil or butyric acid under wheat had no deterrent effect, but both were markedly deterrent when mixed with the wheat. Peppermint oil and *n*-butyl-mercaptan were both deterrent when placed below wheat.—A.S.

CILLI, V. (1951). Rassegna delle attività svolte dall'Istituto Vaccinogeno Zooprofilattico di Asmara (dal 1936 al 1947). Studi e ricerche de patologia tropicale veterinaria. [**An account of the work of the veterinary vaccine institute at Asmara, Eritrea, from 1936-47.**] —*Arch. ital. Sci. med. trop. parassit.* **32,** Nos. 7, 8, 9, 10. 3191

Details of biological products prepared at the Asmara Institute from 1936-47 were given. Sera are prepared against rinderpest, haemorrhagic septicaemia of cattle, tetanus, and snake and scorpion venoms. Vaccines are prepared against rinderpest, haemorrhagic septicaemia, bovine contagious pleuro-pneumonia and caprine contagious pleuro-pneumonia, *Bact. coli* infections, *Salmonella* infections of cattle and fowls, anthrax, African horse sickness, swine fever, swine paratyphoid, enzootic virus pneumonia of swine, fowl pox, and rabies.

The methods used for the examination of meat, milk, butter and other foods were described. Results of P.M. examinations of horses, cattle, camels, sheep, goats, pigs and fowls were summarized. A list of 96 works published by members of the institute during the period under review was given.—R.M.

See also absts. **3002** (disinfection of eggs); **3177** (sensitization of nurses to antibiotics).

LIVESTOCK HYGIENE

FORSYTH, R. J. (1952). **Safer buildings for bulls.**—*Bull. W. Scot. agric. Coll.* No. 148. pp. 25. 1s. 3192

Owing to unsatisfactory conditions at Auchencruive farm, opportunity was taken to build a new double box with yards and service pens for two bulls.

In his brochure F described, with illustrations, the type of building finally evolved after much research and consultations locally, the main object being to ensure greater safety for attendants and also for the bulls. The inclusive cost was £1,080.—D. S. RABAGLIATI.

RAUSING, R. (1952). **The Simontorp rubber cowshed.**—*E. Afr. agric. J.* **18,** 51-53. 3193

The floors of the cowshed described are of seamless rubber. No bedding is used. An electric cable above the withers causes the cows to step back when passing urine and faeces.

—C. C. BANNATYNE.

REPRODUCTION AND REPRODUCTIVE DISORDERS

DUBOIS, G. (1953). Insémination artificielle du mouton en Belgique. [**Artificial insemination of sheep in Belgium.**]—*Zootechnia, Madrid.* **2,** 79-81. [In French. English and Spanish summaries.] 3194

D. found that the collection of semen from rams by the use of an artificial vagina was impractical as the majority of the animals rebelled against the technique. He developed a successful method using a shaped glass receptacle which is placed in the vagina of the ewe and from which the semen is collected immediately after the ram has served.—A.S.

ARTHUR, G. H. (1953). **The use of the artificial vagina for the topical application of therapeutic agents to the penis and prepuce of the bull.**—*Vet. Rec.* **65,** 399-400. 3195

The bull serves repeatedly into an artifical vagina coated with the therapeutic agent, the erection of the penis eliminating the mucosal folds.—IAN NEWSAM.

I. Jacquet, J. (1952). Procédé biologique simple de mesure des facteurs de diffusion contenus dans le sperme de taureau et appré ciation de la fertilité. [**Relation of content of spreading factors in bull semen to fertility.**] —*Bull. Acad. vét. Fr.* **25,** 161-165. 3196

II. Brochart, M. & Valette, P. (1951-52). L'appréciation de la fécondité des taureaux à l'insémination artificielle. Étude sur quelques problèmes relatifs à la mesure des facteurs de diffusion du sperme par méthode biologique. [**Testing of semen of bulls used for artificial insemination by measuring its content of spreading factors by a biological method.**]—*Rev. Elev.* **5,** 195-202. 3197

I. J. found that using albino g. pigs and a modification of the biological indian ink method of assay of spreading factors in bull semen described by Duran-Reynals (1928) in place of the biochemical methods used by other workers, the results could be correlated with the fertility of the bulls as calculated on results obtained in a large number of cows. He gave a range of 6 values from less than 5 units corresponding to extremely bad fertility, to 19 units and over corresponding to good or very good fertility.

II. Using the methods described by Jacquet [I *supra*] the authors tested the content of spreading factors in 10 samples of semen from the same bull over a 2-month period. They emphasized the necessity of using sterile diluents and strict intradermal technique. They assessed the effect of bacterial contamination of semen and of a storage of semen on the results obtained and discussed the possible interference of the vitamin C content of the semen with bacterial spreading factors.

—Ian Newsam.

Walton, A. (1952). **Flow orientation as a possible explanation of " wave-motion " and " rheotaxis " of spermatozoa.**—*J. exp. Biol.* **29,** 520-531. [Author's summary copied *verbatim.*] 3198

Flow orientation of spermatozoa in dense suspensions has been demonstrated by optical and electrical methods. Relaxtion time, *i.e.*, the time required for a suspension of elongated cells, which have been orientated by flow, to regain a certain degree of random distribution when flow ceases, has been shown to be closely and inversely related to motility, as measured by impedance change frequency in the suspension. Flow orientation may provide a physical explanation of 'wave-motion' and 'rheotaxis' of spermatozoa. Wave-motion occurs in a suspension of elongate cells which possess progressive motility in the direction of the long axis of the cell. Orientation of the cells may be brought about by 'short-range order' or flow. Disorientation may be brought about by streams of orientated cells moving in random directions. In the suspension as a whole an equilibrium will be reached such that the forces tending towards orientation (short-range order or flow) are balanced by forces tending towards disorientation (streaming). In small regions, however, statistical variation in the direction and velocity of the streams set up by sperm movements will produce local disturbance of the equilibrium and turbulence or wave-motion will result.

White, I. G. (1953). **The effect of washing on the motility and metabolism of ram, bull and rabbit spermatozoa.**—*J. exp. Biol.* **30,** 200-213. 3199

W. studied the motility, oxygen uptake and aerobic glycolysis of unwashed and once- and twice-washed ram, bull and rabbit spermatozoa in a sodium phosphate-fructose diluent at 37°C. over a period of 5 hours.

At the beginning of the experiment there was a decline in motility and oxygen consumption but towards the end of the experiment in some unwashed ram and rabbit ejaculates there was a rise in oxygen uptake, resulting apparently from bacterial contaminants. Two washings removed bacteria and subsequently reduced oxygen uptake. Whereas one washing had no significant effect on motility and lactic acid production, two washings reduced these considerably.—E.G.

Blackshaw, A. W. (1953). **The effects of potassium and calcium salts on the motility of ram, rabbit and bull spermatozoa.**—*J. Physiol.* **120,** 465-470. [Author's summary modified.] 3200

The motility of ram, rabbit and bull spermatozoa was studied in the presence of various concentrations of potassium and calcium salts. Sodium phosphate buffers were used when potassium alone was investigated and veronal-hydrochloric acid buffers when both potassium and calcium were used. Potassium had little effect on the motility of ram and rabbit spermatozoa washed once, and, in the case of rabbit spermatozoa, incubation at 37°C. caused no change in response. The motility of twice-washed ram spermatozoa was significantly affected by potassium and calcium salts. A concentration of 0·01 M-KCl. gave the best motility and all levels of calcium chloride were deleterious to motility. Twice-washed rabbit spermatozoa were not significantly in-

fluenced by variations in potassium and calcium chloride concentrations.

Potassium chloride influenced the motility of twice-washed bull spermatozoa, the optimum level being about 0·01 M, while calcium chloride had no significant effect on motility.

WALTON, A. (1953). **The survival of spermatozoa *in vitro* and the measurement of motility.**—*Final Rep. IInd Int. Congr. Physiol. Path. anim.* Reprod. artif. Insem., Copenhagen. 1952. pp. 45-49. [In English.] 3201

W. considers that research into the survival rate of spermatozoa *in vitro* must be conducted at or near body temperature. Measurement of the motility of spermatozoa is of great importance; he discussed recent advances in this field. —IAN NEWSAM.

CAMPBELL, R. C., HANCOCK, J. L. & ROTHSCHILD. (1953). **Counting live and dead bull spermatozoa.**—*J. exp. Biol.* **30,** 44-56. [Authors' summary modified.] 3202

An account of an investigation into the accuracy of estimates of the proportions of dead spermatozoa in diluted and undiluted bull semen, using the nigrosin-eosin live-dead staining technique. Two operators counted 24,673 spermatozoa, in lots of approximately 200, on smears derived from a number of subsamples taken from the same ejaculate. The variations between different counts made on one smear were consistent with random sampling from a binomial population; the same applied to variations between slides made from one subsample; the variation between subsamples were, however, larger than would have been expected on the basis of random sampling. Undiluted semen and semen diluted 1 : 4 with Ringer-phosphate-fructose solution had the same mean percentage dead and precision of estimation. Tables were given showing how the precision of an estimate of the proportion of dead spermatozoa in a sample varies according to the percentage of dead spermatozoa, the total number of spermatozoa counted and according to the number of subsamples taken from the original ejaculate, each subsample being used for making counts.

WEISS, K. (1953). Färbung der Bullenspermien zur Qualitätsbeurteilung. **[Staining of bovine spermatozoa.]**—*Fortpfl. Bes. Haustiere.* **3,** 45-47. 3203

A comprehensive account of numerous stains and the technique of staining. Special attention was drawn to the care and use of reagents and the elimination of false results.

Staining reactions were discussed in relation to semen quality and degeneration of spermatozoa.—E. J. L. SOULSBY.

CHALLICE, C. E. (1953). **Some observations on the morphology of spermatozoa by electron microscopy.**—*Proc. Soc. Study Fertil., Lond. Conf.* No. 4. pp. 21-26. [Abst. from author's summary.] 3204

The morphology of some mammalian spermatozoa developing within the testis and epididymis was studied by electron microscopy of sections 0·2 μ thick.

Transverse sections show that early in development the axial filament contains a fine central fibril surrounded by nine coarser fibrils, arranged so that in cross section they form a circle. Later, an inner ring of nine fibrils appears, and the outer ring, at the proximal end of the filament, appears to consist of 11 fibrils. Longitudinal sections show that these fibrils run straight along the length of the tail.

C. described the arrangement of membranes, the double cortical helix, and the lateral ridges of the tail; the development of the midpiece spiral from mitochondria of the spermatid cytoplasm and the fate of the residual cytoplasm and the membrane of the spermatid. He discussed the advantages, difficulties and potentialities of this method of studying the structures developing in spermateleosis (development of the spermatozoon from the spermatid).

HANCOCK, J. L. (1953). **The spermatozoa of sterile bulls.**—*J. exp. Biol.* **30,** 50-56. [Author's summary copied *verbatim.*] 3205

Sterility in certain Friesian bulls is associated with a specific morphological abnormality affecting the acrosomes of their spermatozoa. This abnormality is visible in living spermatozoa and is also visible in fixed spermatozoa when precautions are taken to preserve the morphology of the cell. If such precautions are not taken, and the spermatozoa are subsequently stained by the nigrosin-eosin method, or with Heidenhain's iron haematoxylin, or when such spermatozoa are examined with the phase-contrast microscope, the abnormality is inconspicuous. These difficulties do not arise when either the Giemsa stain or Indian ink is used.

CUPPS, P. T., LABEN, R. C. & MEAD, S. W. (1953). **The relation of certain semen-quality tests to breeding efficiency and characteristics of semen from low-fertility**

bulls before and after hormone injection.—*J. Dairy Sci.* **36,** 422-426. [Abst. from authors' summary.] **3206**

Of various laboratory tests for semen quality including concentration, motility, fructolysis index, percentage dead spermatozoa, and percentage abnormal spermatozoa, the latter two were found to be most closely correlated to fertility, as measured by 30–60 day non-returns. A deficiency of follicle-stimulating hormone (F.S.H.) appeared to be one of the factors involved in the production of low-quality semen by certain inbred bulls [see also *V.B.* **22,** 1200]. The luteinizing hormone and testosterone appeared to be secreted in normal quantities in these bulls. Factors other than F.S.H. deficiency appear to have been involved in poor-quality semen production by the three inbred Holstein bulls studied in that the administration of that hormone did not correct all the abnormalities.

Willett, E. L., Buckner, P. J. & Larson, G. L. (1953). **Three successful transplantations of fertilized bovine eggs.**—*J. Dairy Sci.* **36,** [Authors' summary modified.] **3207**

Techniques employed in the first three successful transplantations of bovine eggs were described in detail. A total of five transplantations were made. Blood typing proved that the heifers carrying the calves through pregnancy were not their true dams.

Crotto, N. R. (1952). Algo más sobre los epitelios vaginales en la vaca. Estudios de sus modificaciones citológicas. **[Cytology of the bovine vagina.]**—*Rev. Med. vet., B. Aires.* **34,** 91-98. **3208**

An account of an unsuccessful attempt to correlate the variations in cellular and mucous content of bovine vaginal scrapings with the onset of pregnancy or the progress of the oestrous cycle.—A.S.

Glover, F. A. & Blair, G. W. S. (1953). **The flow properties of cervical secretions in the cow as related to certain physiological conditions.**—*J. Endocrin.* **9,** 160-169. [Authors' summary slightly modified.] **3209**

The flow properties of bovine cervical secretions were measured in a constant speed emptying capillary micro-rheometer (the 'rheoscope'). Ten cows were studied for three oestrous cycles and onwards through the complete gestation period (875 readings). In a subsidiary special study of the changes of secretions occurring during the first 2 months of pregnancy, 40 animals were examined (480 readings). The variations in the flow properties so measured were found to be correlated with the physiological changes accompanying the oestrous cycle and pregnancy. Characteristic differences were noted in cases of abortion and subfertility. It was suggested that the flow properties are governed by the ovarian hormones and that the measurements represent the resultant effect of the levels of oestrogen and progesterone in the body.

Luke, D. (1953). **The reaction of the white blood cells at parturition in the sow.**—*Brit. vet. J.* **109,** 241-244.[Author's summary slightly modified.] **3210**

At parturition in the sow there is a well-marked lymphopenia and a neutrophilia. The blood reaction is usually apparent 6 to 30 hours before parturition. Exceptionally it may be evident as much as 9 days before farrowing, or may be delayed until after farrowing has commenced.

Hafez, E. S. E. (1953). **Gonadotrophin-induced ovulations in the buffalo.**—*Vet. Rec.* **65,** 384-385. **3211**

S/c injections of pregnant mare's serum (P.M.S.) induced 9 anoestrous buffaloes to conceive but the use of P.M.S. in 10 buffaloes with normal oestrous cycle did not cause superovulation.—Ian Newsam.

I. Lamming, G. E. & Rowson, L. E. (1953). **Ovarian hormones and uterine infection in cattle.**—*Proc. R. Soc. Med.* **46,** 387-391. Discussion pp. 391-392. **3212**

II. Rowson, L. E. A., Lamming, G. E. & Fry, R. M. (1953). **The relationship between ovarian hormones and uterine infection.**—*Vet. Rec.* **65,** 335-340. **3213**

I. The authors used 50 cows in experiments designed to elucidate the relationship existing between ovarian hormones and uterine infection. In 6 cows, inseminated with *C. pyogenes* infected semen during oestrus, the uterus was sterile two days later but in 11 cows inseminated at varying periods in the luteal phase there was evidence that the uterus is susceptable to infection during the non-oestrous period.

Using 9 ovariectomized cows the authors showed that progesterone promotes uterine conditions suitable for bacterial growth whilst oestrogen prevents bacterial development. Antibiotics added to semen introduced into the uterus during the luteal phase will prevent bacterial growth, but Lugol's iodine used during this phase will cause a sterile pyometritis.

In cows in the luteal phase infected with *C. pyogenes* the uterus may be cleared of infection either by expression of the corpus luteum or by boosting of the endogenous oestrogen level with stilboestrol injections.

II. A more detailed report of the bacteriological findings of studies described in I *supra*, including six fine coloured photographs of infected and sterile uteruses. It was postulated that the oestrogenic influence of several heat periods in cattle infected with *Vibrio fetus* and *Trichomonas foetus* clears the uterus of such infections. The use of exogenous oestrogens to control these infections in the bull was suggested.—Ian Newsam.

Emmens, C. W. (1953). **Further studies on the sterilization of female albino mice with oestrogen.**—*J. Endocrin.* **9,** 204-209. [Author's summary slightly modified.] 3214

Monogamously-mated female albino mice were injected with 0·02–0·59 μg. of oestradiol benzoate twice weekly for from 1 to 4 months, and then rested until 6 months had elapsed from the start of the test. All were then injected with 0·20 μg. of oestradiol benzoate twice weekly for 2 months. Various control groups were also maintained. The test was then continued for a total period of 12 months, and the fertility of all groups recorded throughout. During the first injection period, a dose of 0·10 μg. or less did not affect fertility. A dose of 0·50 μg. delayed the first appearance of litters by approx. one month from the cessation of injections. During the second injection period, the uniform dose of 0·20 μg. also caused a delay in the first appearance of a litter by from 10 to 49 days after stopping injections in different groups, but no correlation was found between the magnitude of this delay and previous treatment. Although litter sizes were somewhat reduced after treatment, fertility seemed otherwise to have been completely regained after each course of injections, and there was no significant histological findings in the reproductive organs at the end of the test period.

Nel, J. A. & Louw, D. J. (1953). **The lethal factor in grey karakul sheep.**—*Fmg in S. Afr.* **28,** 169-172. [Authors' summary slightly modified.] 3215

A lethal factor occurs in grey Karakul sheep. Sheep which are homozygous for grey die in an abnormal manner, the most striking abnormality being the digestive complications and especially relative to the abomasum. It is accepted that the abnormalities are already present at birth. Gradually the effect of this becomes more apparent and most lambs die when 4 to 9 months old. To some extent losses may be controlled. They can be eliminated entirely by mating black rams with grey ewes or *vice versa*. This system has, of course, certain disadvantages. The indication is that losses when grey ewes are mated with grey rams may be considerably reduced by slaughering the white-grey lambs and those which obviously have white tongues. It is clear from these findings that certain supplementary factors play a role.

Merkens, J. (1953). De vererving van de kleuren bij paarden. [**Heredity of colour in horses.**]—*Tijdschr. Diergeneesk.* **78,** 189-216. [English, French and German summaries.] 3216

According to personal observation on the Isle of Sumba (Indonesia) matings of pigmented horses lacking factor D (cream colour) often result in "white" foals. From the literature it is known that coloured foals can be born from two white parents. By analogy with the factors C and R in fowls (Bateson, Saunders and Punnett) M. postulated the existence of two factors A and C, that are necessary for the production of "colour".—C. A. van Dorssen.

Maule, J. P. (1953). **Crossbreeding experiments with dairy cattle in the tropics.**—*Anim. Breed. Abstr.* **21,** 105-121. 3217

A critical analysis was made of the published results. Much of the work—especially in India—has neither been carefully planned nor carried out with sufficiently accurate control. Much work has been inconclusive in that little attempt has been made to find and then fix, a type combining the desired characters of zebu and European breeds. The final point is that the interbreeding of the F_1 generation has not received sufficient attention. There are 56 references.—D. S. Rabagliati.

See also absts. **2984** (pregnancy and tuberculin test); **3026** (*V. fetus* and fertility); **3044** (dourine); **3048** (trichomoniasis); **3152** (acid-base equilibrium in pregnant donkeys); **3181** (lactation and abortion); **3233** (report. Australia).

ZOOTECHNY

Sullivan, J. J. & Young, J. G. (1953). **A calf-branding crush and cradle.**—*Qd agric. J.* **76,** 174-182. 3218

The authors gave specifications for the construction of a calf crush, and branding cradle, installed on many beef cattle properties in

Queensland. It is claimed to be a valuable labour-saving device, and its use is stated to lessen distress to the calves.—A. CULEY.

MANN, I. (1951). **A handbook on hides and skins.** pp. 103. Nairobi: Govt. Printer. 3s. 6d. [Revised edition.] 3219

A handbook for veterinary officers who have to apply the Kenya Hide and Skin Trade Ordinance. The defects in hides are described: an account of methods of slaughtering and flaying (together with description of the appropriate tools) is given. After washing, fleshing, and trimming, the hide may be preserved by drying and/or salting: drying on the ground often leads to putrefaction and drying on frames is preferable. An insecticidal arsenical dip is recommended: details of its preparation are given together with the requisite laboratory tests. Folding drawings show constructional details of (1) hide drying sheds and equipment and (2) hide stores.—S. E. FOX.

ANON. (1953). **Conference on Colonial hides and skins, held at the Hoare Memorial Hall, The Church House, Great Smith Street, London, on the 16th, 17th and 18th September, 1952. Summarised report of the proceedings.**—*Colon. Pl. Anim. Prod.* 3, 83-134. 3220

Veterinary and hide improvement officers of African Colonial Territories and the Sudan met tanners, exporters, and brokers. The chief subjects of discussion were:—flaying and cleaning; damage to skins by disease, wire, horning, etc.; methods of improving skin quality; curing by drying and/or salting; efficient baling and storage.—S. E. FOX.

ANON. (1953). **Electric fencing.** pp. iv + 30. *Min. of. Agric. Bull.* No. 147. London: H.M. Stat. Off. 2s. 6d. 3221

Among the advantages of electric fencing discussed were its low cost and adaptability, and, when plain wire is used, the reduction of injuries to stock, as compared with the use of barbed wire. The need to train animals to respect electrified wire was emphasized. Methods of folding grassland and arable crops were discussed, and figures were quoted showing an increase in milk yield when grazing was strip-folded. [No mention was made of the control of intestinal parasites by strip-folding.—Ed. *V.B.*]—E. A. GIBSON.

MOCHRIE, R. D., HALE, H. H., EATON, H. D., ELLIOTT, F. I. & PLASTRIDGE, W. N. (1953). **Effects of vacuum level and milking duration on udder health in mastitis-free first calf heifers.**—*J. Dairy Sci.* 36, 504-515. [Authors' summary modified.] 3222

Three Jersey and nine Holstein first-calf heifers, free from mastitis for the first 4 weeks *post partum*, were milked by machine at 10, 13 or 17 in. of vacuum from the 5th to the end of the 44th week of lactation, each half of each cow's udder was being milked at the rate of normal milking for that half of the udder or for double the normal duration of milking for the entire comparison period.

The log of the leucocyte count, chloride and pH values, and freedom from mastitis organisms in twice-weekly quarter samples showed no significant differences in average response among vaccum levels. Neither were differences observed for teat erosions or udder fibrosis. Time trends for leucocyte and chloride values did not differ significantly for vacuum levels, which, in fact, differed only in their tendency to curvature for the pH criterion.

Halves milked for the normal duration had significantly greater mean leucocyte and chloride values and a greater linear rate of increase over the lactation for these two criteria and for pH than did halves milked for double the normal duration. No significant differences were observed between milking durations for freedom from organisms, teat erosions, or fibrosis of the udder.

SEGHEITI, L. (1953). **A simple apparatus for collecting urine from steers.**—*Amer. J. vet. Res.* 14, 28-29. 3223

S. described an apparatus for the collecion of samples of urine from steers; it consisted of a raised platform with an iron grating set in wooden stanchion stalls, a metal collecting pen being held in position below the grating. Details of the apparatus were shown in figures and photographs.—D. S. RABAGLIATI.

LUCAS, I. A. M. & THOMSON, W. (1953). **The effect of flooring upon pigs reared in an otherwise cold environment.**—*J. agric. Sci.* 43, 192-198. 3224

In small-scale trials it was found that piglets reared in buildings with concrete floors under cold conditions had a higher incidence of liver disease, lower Hb values and lower weights at weaning than those raised in buildings with wooden floors and with heated beds. Growth rates after weaning were similar. Pigs with diseased liver took 48 days longer to reach 200 lb. [The diseased liver referred to is the mottled enlarged liver associated with anaemia and in pigs reaching bacon weight it was assumed that a fibrous condition of the liver was evidence of this disease.]—R. A. HUCK.

PHILLIPS, R. W. (1951). **Expansion of livestock production in relation to human needs.**—*Nutr. Abst. Rev.* **21**, 241-256. 3225

In this review P. examined the extent to which man is utilizing animal protein, wool textiles and draught power from animal sources, and considered briefly some of the ways in which increased quantities of livestock products could be made available for human use.

The variation in animal protein consumption from country to country is enormous, as is also the range of variation in the supply of wool textiles available for home consumption. Data were given. Approx. calculated figures for the percentage contribution of animal traction to total draught were given for various countries.

In discussing the possibilities of increasing livestock production, consideration was given to breeding, feeding and management, to the management of grazing, water conservation, the burning of range lands, modification of flora, improvement by manuring, the provision of shade and showers, and to the control of diseases and pests.—ALASTAIR N. WORDEN.

TECHNIQUE AND APPARATUS

GRAY, P. H. H. (1953). **A new method in staining bacteria on microscope slides.** [Correspondence.] — *Nature, Lond.* **171**, 1030. 3226

When No. 4 Whatman filter paper, dried after saturation with simple dyes, is placed on a bacterial smear and a drop of water is added, sufficient dye is released to stain the bacteria.
—A. SEAMAN.

VALENTINE, R. C. & BRADFIELD, J. R. G. (1953). **A new procedure for bacteria viability counts and its biophysical applications.** [Correspondence.] — *Nature, Lond.* **171**, 878. 3227

The culture sample is incubated for a few hours on a collodion film covered with urea agar which permits growth but not cell division. The percentage viability of the culture is obtained by counting out, in the electron microscope, the elongated and the short organisms.
—A. MAYR-HARTING.

REKAA, A. (1952). **Ultrasonics applied to biological research. Experimental technique and measurement of the intensity of ultrasonic waves.**—*Acta path. microbiol. scand.* Suppl. No. 93. pp. 384-388. Discussion: pp. 397-399. [In English.] 3228

R. described an apparatus incorporating a piezoelectric generator arranged to give an homogenous field at a frequency of 400 kilocycles per sec. and with an intensity of 4 Watt per sq. cm. producing an alternating sound pressure vibrating between 3·5 atm. over pressure and 3·5 atm. under pressure with a maximum acceleration of the liquid particles of $5{\cdot}8 \times 10^7$ cm. per sec. per sec. Details of the method of measuring these quantities were given.—E.V.L.

SWISHER, S. N. & IZZO, M. J. (1953). **A photographic method of recording red cell counts.**—*J. Lab. clin. Med.* **41**, 953-958. [Authors' summary modified.] 3229

The authors described a photographic method of recording red cell counts. Counts carried out by this method are slightly lower and slightly more variable than those obtained by direct visual microscopic enumeration. These differences were analyzed statistically and were found to be relatively small. The photographic method is advantageous in circumstances requiring the recording of many erythrocyte counts in a short period of time.

TULLIS, J. L. (1953). **Preservation of leukocytes.**—*Blood.* **8**, 563-575. [Abst. from author's summary.] 3230

An account of a method for the separation and preservation of leucocytes. T. discussed also the significance of different methods for measurement of cell viability.

See also absts. **3203** (staining of bovine spermatozoa); **3204** (electron microscopy of spermatozoa).

MISCELLANEOUS

THORPE, W. H. (1948). **The modern concept of instinctive behaviour.**—*Bull. anim. Behaviour.* **1**, No. 7. pp. 2-12. 3231

In this concise general account of the modern meaning of instinct, T. concluded that instincts can be defined most precisely as: (1) inherited, (2) specific, (3) stereotyped patterns of behaviour; that they are separated from other types of stereotyped inborn behaviour (*e.g.* kineses and taxes) by being (4) released complete by, rather than guided by, the environment and (5) by their tendency to accumulate reaction-specific energy; and that this manifests itself by (6) a lowering of the threshold for release and (7) by a tendency to "vacuum activity".—ALASTAIR N. WORDEN.

REPORTS

GREAT BRITAIN. (1953). **National Farmers' Union combined yearbook 1953, comprising: annual report, list of office holders, agricultural statistics.** pp. 196+78+22. London: National Farmers' Union. 5s. 3232

The greater part of the year-book comprises the reports of the various committees, of which there are 32 (not counting sub-committees). Amongst these are the General Purposes Committee, and others which are concerned with Education, Diseases of Animals, Hill farming, Milk and Dairy Produce, Pigs, Parliamentary, Poultry and so on.

In the report on Diseases of Animals, considerable concern is shown at the increase in the outbreaks of F. & M. DISEASE which numbered 495, of ANTHRAX which totalled 1,137 and of SWINE FEVER which reached 828 outbreaks, even though this last was a reduction of 474 outbreaks from 1951.

The handbook also contains a list of office-holders for 1953, lists of county branches and 22 pages of agricultural statistics.

—D. S. RABAGLIATI.

AUSTRALIA. (1952). **The stock inspector. Institute of Inspectors of Stock of New South Wales, Year Book, 1952.** pp. 96. Sydney: The Institute. 2s. 6d. 3233

Byrne discussed BOTULISM which caused widespread losses in sheep in the Young district early in 1952 following ingestion of rabbit carcasses during a drought. Mortality ranged from 1·5 to 32%. The P.M. findings were not diagnostic and often suggested enterotoxaemia. Laboratory tests failed to isolate *Cl. botulinum* from rabbit carcasses, but following previous experience it was assumed that type B toxin was concerned. No type B toxoid was available and control measures were directed towards preventing ingestion of carrion by supplementary feeding. It was found necessary to supply a full maintenance ration before carrion eating was prevented. There are suggestions that treatment with purgatives may have been of value.

Keast discussed LEPTOSPIROSIS in calves including distribution, symptoms, P.M. findings, treatment and control. He listed the specimens required for diagnosis. Calves should not have access to premises or pastures contaminated by pigs, which may be a source of infection. Leptospira may survive for some months in mud and pools.

Beattie discussed the differential diagnosis of BRUCELLOSIS, VIBRIOSIS and TRICHOMONIASIS. He gave a brief historical note on records of *Tr. foetus* in Australia.

Edgar discussed briefly the epidemiology of MYXOMATOSIS in rabbits, and the preparation and use of the virus.

Gordon discussed host-parasite relationships and HELMINTH INFESTATION. Jones, T. R. reported *Dicrocoelium dendriticum* in sheep, but the diagnosis was not confirmed by the laboratory. Madden discussed acute FLUKE INFESTATION, serious outbreaks of which followed recent wet seasons. When 4-ml. doses of carbon tetrachloride were used deaths ceased within a few days, and there were no cases of poisoning. Jones, N. L. C. and Jones, N. S. reported *Gongylonema pulchrum* in the rumen of a cow.

Charles discussed the importance of nutrition in general, with comments on the influence of a falling plane of nutrition on the accurrence of TOXAEMIA OF PREGNANCY, chronic COPPER POISONING and HELIOTROPE POISONING, and gave some examples, with figures, of the value of supplementary feeding, especially of ewes during the last two months of gestation.

Harding discussed a fatal URAEMIA in sheep with a mortality of 250 out of 470 ewes over a month following ingestion of *Oxalis corniculata* (yellow wood sorrel) even though the sheep had been moved to a pasture free from this plant within a few days of the first deaths. The ewes were 1–2 months pregnant. Lambs 7–8 months old in the same flock were unaffected. The symptoms resembled those seen by Bull (1929) in sheep poisoned by *O. cernua*, but P.M. findings differed, there being no macroscopic changes in he kidneys, but sections revealed extensive disseminating necrosis, beginning in the region of the glomeruli and extending from the convoluted and straight tubules to the medulla. The calcium and magnesium levels in the blood were not changed and calcium and magnesium therapy failed.

Blood discussed the treatment of various livestock ailments.—H. McL. GORDON.

EAST AFRICA, HIGH COMMISSION. (1953). **Annual report of the East African Tsetse and Trypanosomiasis Research and Reclamation Organization for 1952.** [LEWIS, E. A.] pp. 58. Nairobi: East Africa High Commission. 3234

Tsetse research included observations on larviposition, pupal sites, fly populations and tsetse physiology. Work on human and animal TRYANOSOMIASIS included investigation of the presence of anti-substances in trypanosome infected animals and further studies on antrycide. Progress on reclamation schemes and advisory services was reported.—S. F. M. DAVIES.

COLONY OF SEYCHELLES. (1952). **Annual report of the Department of Agriculture for the year 1951.** pp. 32. Victoria, Mahé-Seychelles: Head Printer at the Govt. Printing Office. [Report of Veterinary Officer, (DESAI, D. K.) pp. 8-14.] 3235

In addition to the usual varieties of livestock the Veterinary division has charge of the turtles maintained for slaughter and also gives advice on bee keeping.

Of 156 government dairy cows tested 2·94% were infected with TB.

One case of COW POX was detected.

HELMINTH INFESTATION is the main cause of losses among livestock. An investigation in pigs showed *Balantidium* and *Giardia* in many herds and also *Ascaris, Strongyloides* and *Stephanurus* a lesser extent. EYE-WORM INFESTATION in poultry is prevalent and is treated with 2% creolin. MANGE in pigs and dogs and " SCALY LEG " in poultry were treated. TICK-BORNE DISEASES are controlled by regular dipping which is free.

A policy of mixed farming is being encouraged. Sindhi and Friesian cattle have been imported for the gradual improvement of the poor Creole cattle. Cross bred Sindhi-Friesian cattle which thrive under local conditions are being used to grade up the local cattle.

The Veterinary Division deals with livestock on the government estates, the poultry development scheme and the breeding of pigs. Large White and Large Black are bred and crosses of these breeds.—J. A. GRIFFITHS.

CYPRUS. (1952). **Department of Agriculture. Annual report for 1951, annexure I. Annual report of the Chief Veterinary Officer for 1951.** [ROE, R. J.] pp. 8. [Mimeographed.] 3236

There is compulsory vaccination of sheep and goats against ANTHRAX; 551,138 animals were vaccinated with a virulent spore vaccine. Only one case, in a horse, was reported during the year.

Outbreaks of BLUETONGUE occurred in 221 villages and losses were severe. Nearly 40,000 sheep were vaccinated with vaccine from Onderstepoort. THREE-DAY SICKNESS occurred in a mild form among cattle. There were serious losses among sheep and goats in 103 outbreaks of COCCIDIOSIS during the spring months. This disease has possibly been confused with the widespread PARASITIC GASTRO - ENTERITIS. Mepacrine is used in the treatment of COCCIDIOSIS and has given excellent results. The increased incidence of ENTEROTOXAEMIA during the rains appears to be due to improved feeding and lack of exercise. A prophylactic vaccine is being used. Fifteen outbreaks of OVINE PIROPLASMOSIS were reported. ANTHRAX vaccine is now being prepared at the Laboratory. An investigation of an outbreak of COLIFORM SEPTICEAMIA among hens on the government stock farm was investigated. The Veterinary Laboratory, Weybridge, confirmed that the organism was *Bacterium* (*Escherichia*) *freundii*. PIGEON POX virus was adapted to egg cultivation. An egg membrane vaccine is now in general use. Reactions have been very satisfactory. FOWL POX vaccine is now being produced by cultivation on eggs of a strain of virus obtained from Israel. " Q " FEVER. Of serum samples sent to a laboratory outside Cyprus 68% of those from cattle, 40% of those from sheep, and 35·5% of those from goats gave positive reaction with Q FEVER antigen. Abattoir workers gave negative reactions. A formolized tissue vaccine was prepared from a kitten which died from a peracute attack of FELINE ENTERITIS and a number of kittens were inoculated and had not become infected [presumably when exposed to chance infection] but the numbers were too small to be of any value. *Oestrus ovis* infections were treated in 1,577 sheep by intra-sinal injections of 3 ml. of a 15% tetrachlorethylene emulsion. The effect on the local fly density is to be observed next hot season. An investigation on PHOSPHORUS DEFICIENCY is in progress.

Specimens examined at the laboratory numbered 1991 and 952 P.M. examinations were made.

Meat inspection is under the guidance of the Veterinary Department in the principal towns; 138,530 animals were slaughtered.

The Veterinary Hospital in Nicosia has accommodation for 12 large and 20 small animals. There were 174 in-patients and 1,240 attendances by out-patients.—J. A. GRIFFITHS.

BRITISH GUIANA. (1953). **Annual report of the Director of Agriculture for the year 1950.** pp. 43. Georgetown, Demerara: The "Daily Chronicle" Ltd. [Veterinary agricultural division, URUSKI, W., pp. 32-37.] 3237

The Berbice district was in quarantine on account of ANTHRAX for part of the year. Spore vaccine obtained from England was used in controlling the disease. Tuberculin reactors in the dairy herds are being eliminated. Small farmers are unwilling to dispose of reactors and there are no compulsory powers. In the government herds 14·8% of the cattle are infected. Tests of animals in government herds for BRUCELLOSIS proved that 4·8% were infected. BOVINE MASTITIS is widespread and causes

heavy losses of milk among dairy cows. Penicillin treatment is said to be effective. An outbreak of STRANGLES among equines in the Rupununi area was successfully treated with sulphonamides.

ANAPLASMOSIS (*A. marginale* and *A. centrale* infections) causes severe losses among dairy cattle. When the haemoglobin content is not less than 50% of normal, good results are obtained with the use of acaprin, pirocyl or babesan. PIROPLASMOSIS is not so common as ANAPLASMOSIS but when a mixed infection occurs this is often fatal. EQUINE TRYPANOSOMIASIS has not occurred since 1948. BOVINE TRICHOMONIASIS occurs in the coastal areas. Artificial insemination is aiding in its elimination. Cattle and poultry are affected with COCCIDIOSIS. The feeding of 5% of rum yeast enabled young poultry to resist infection.

MANGE is common among domestic mammals. Ticks infest all animals. There are no dipping tanks, but spraying with arsenical and benzane hexachloride dipping fluids is practised on government farms and by some farmers.

HELMINTHIASIS affects all animals. Phenothiazine and also nicotine and copper sulphate for tapeworms are used, but re-infestations soon occur.

Poultry diseases include FOWL TYPHOID in the dry season and ROUP in the wet season. FOWL POX also occurs in a mild form. Clinical services included treatment of 1,868 animals and 1,417 P.M. examinations. Details are given of animal husbandry work in progress.

—J. A. GRIFFITHS.

LEEWARD ISLANDS. (1952). **Annual report of the Departments of Agriculture and Veterinary Services for the year 1951. Part I. Report of the Antigua Agricultural Department** [E. R. H. MARTIN] 39 pp. **Part II. Report of the St. Kitts-Nevis-Anguilla Agricultural Department** [R. E. KELSICK] 39 pp. **Part III. Report of the Montserrat Agricultural Department** 17 pp. **Part IV. Report of the Virgin Islands Agricultural Department** [M. WINTER] 10 pp. **Part V. Annual Report of the Chief Veterinary Officer, Leeward Islands for the year 1951** [L. R. HUTSON] 7 pp. **Part VI. Report of the St. Kitts-Nevis-Anguilla Veterinary Department** [A. W. VAUGHAN] 11 pp. Antigua: E. M. Blackman, Government Printer. $2.78. 3238

I, II, III & IV. These reports include local items of veterinary interest which are embodied in the Report of the Chief Veterinary Officer, Leeward Islands Colony [V *infra*] on Animal Health, and the Report of the Government Veterinary Officer, S. Kitts, Nevis and Anguilla [VI *infra*].

V. In a livestock census 18,959 cattle, 11,699 sheep, 15,884 goats, 5,878 pigs, 2,989 horses and 66,274 poultry were enumerated.

There have been no outbreaks of ANTHRAX since 1948 and none of SWINE FEVER since 1949. Diseases reported or observed among equine species were TETANUS and PIROPLASMOSIS. T.B., MASTITIS, PIROPLASMOSIS, ANAPLASMOSIS and COCCIDIOSIS occurred in cattle; MASTITIS in goats; TB. in pigs; DISTEMPER, LEPTOSPIROSIS and PIROPLASMOSIS in dogs; INFECTIOUS FELINE ENTERITIS in cats; and FOWL TYPHOID, LEUCOSIS COMPLEX and COCCIDIOSIS in poultry. In all animals HELMINTHIASIS and ectoparasites are a cause of disease. Deficiency diseases are common including AVITAMINOSIS, PHOSPHORUS DEFICIENCY and GOITRE in newborn calves.

In Antigua 0·5% of 409 cattle gave positive reactions to the tuberculin test. In St. Kitts—Anguilla 2·2% of 462 cattle were infected. The Virgin Isles is still an accredited free area.

The first recorded case of CANINE PIROPLASMOSIS was observed. The disease is considered to be endemic among the highly resistant indigenous dogs.

Two cases of GOITRE in calves were observed at the Central Experimenal Station, Antigua.

Details are given of an investigation at the Antigua Experiment Station by S. L. Hignett of the Wellcome Veterinary Station, England, of the causes in dairy cows of reduced milk yield, temporary infertility and in some cases, virilism. His recommendations are being put into effect. Further laboratory research is being carried on.

VI. This report details all the references embodied in the report of the C.V.O. Leeward Islands to this area. A staff of two stock inspectors, a diagnostic laboratory and clinic have been provided. An ANTHRAX vaccination campaign is in force in endemic areas. Animal husbandry and livestock improvement measures are under the supervision of the G.V.O.

—J. A. GRIFFITHS.

U.S.A. (1952). **What's new in farm science. Annual report part one of the University of Wisconsin Agricultural experiment Station.** —*Bull. Wis. agric. Exp. Sta.* No. 496. pp. 111. 3239

A popula review. Mention was made of a number of small-scale experiments of veterinary interest. Results were largely inconclusive.

—C. C. BANNATYNE.

U.S.A. (1951). **Report of the Chief of the Bureau of Dairy Industry, Agricultural Reseach Administration, 1951.** [REED, O. E.] pp. 27. Washington, D.C.: Superintendent of Documents, U.S. Govt. Printing Office. $0.10. 3240

Feeding experiments failed to show that an excess of molybdenum in the soil caused X DISEASE (HYPERKERATOSIS). There was a lowering of the haemoglobin content of the blood and histological examination of the testes revealed damage to the interstitial cells and the germinal epithelium, with little or no formation of spermatozoa. The use of X-ray photography for the early detection of RICKETS in calves is being studied, but insufficient data have been obtained. The retarded rate of closure in the ulnar epiphyseal cartilage area is being studied; tests revealed a concurrent decrease in blood calcium and phosphatase levels.

—J. A. GRIFFITHS.

U.S.A. (1952). **Report of the Chief of the Bureau of Dairy Industry, Agricultural Research Administration, 1952.** [REED, O. E.] pp. 30. Washington, D.C.: U.S. Dep. Agric. 3241

Research workers of the Bureau have found evidence of three unidentified nutritional factors. Thyroprotein (iodinated casein) given in an adequate basal ration causes apparent dietary deficiency in rats, as shown by a decreased growth rate. The thyroprotein appears to increase the metabolic growth rate and so increases the demand for essential nutrients. Nutritional deficiencies may also occur following the feeding of a bacteriostatic agent such as sulphasuxidine which affects the synthesis of the essential nutrients in the alimentary tract.

Tests to relieve the deficiencies so caused, indicated the possible existence of three factors: one in whole liver, a second in a commercial soya bean preparation, and the third in screw pressed cotton-seed meal—J. A. GRIFFITHS.

BOOK REVIEWS

LANGERON, M. & VANBREUSEGHEM, R. [Revised by.] (1952). Précis de mycologie. Mycologie générale, mycologie humaine et animale. Techniques. [**Mycology. General mycology, human and veterinary mycology. Techniques.**] pp. viii + 703. Paris: Masson et Cie. 2nd Revised Edit. Fr. 4800. 3242

The changes in this new edition of a now well-established book, have considerably enhanced its value to the medical and veterinary professions.

Part One deals comparatively with the position, systematics, morphology, and reproduction of all groups of fungi, and includes discussions on polymorphism, convergence, sexuality, and adaptation for parasitism. Throughout this part as in the second, there is an emphasis on fungi of medical importance and much useful information is included in the accounts of mycetoma morphology, 'mosaic fungi', spore-formation, etc. The figures are well-selected and reproduced clearly.

In Part Two most of the standard mycological techniques are described as well as several special methods for the isolation and study of particular groups, *e.g.* dermatophytes, yeasts, and actinomycetes. Formulae for over 100 stains and media are provided, with notes on the most suitable sterilization times, whilst the methods outlined for slide culture, the freeing of isolates from bacterial contamination, the examination of infected tissues, the use of fluoroscopy and the reduction of pleomorphism in cultures, are all details of use to those concerned with animal disease.

Part Three by Dr. Vanbreuseghem is entirely new and describes some 23 mycoses of man and animals, with detailed acounts of the history, aetiology, symptoms, pathology and diagnosis of each. Short descriptions of those affecting animals are given under actinomycosis, aspergillosis, North American blastomycosis, coccidiodomycosis, dermatophytosis, haplomycosis, histoplasmosis, epizootic lymphangitis, moniliasis, torulosis, rhinosporidiosis, and sporotrichosis.

This is not a book for the beginner, but it is one of the best manuals on the subject. A short general bibliography and an index are provided, the important papers having been cited in the text.—P. K. C. AUSTWICK.

RÖHRER, H. (1952). Auf dem Wege zur Verhütung der Maul- und Klauenseuche. [**Prevention of foot and mouth disease**] pp. 16. Leipzig: S. Hirzel. DM. 1.50. 3243

A pamphlet discussing the control of F. & M. disease, with comment on the steps taken to enlist international cooperation.—A.S.

MOZLEY, A. (1952). **Molluscicides.** pp. viii + 87. London: H. K. Lewis & Co. Ltd. 9s. 3244

This book, written for laymen, deals mainly with the schistosomes and their vectors. The author is of the opinion that the use of mollus-

cicides, available at " trifling cost ", can bring about the destruction of the transmitting snails. Copper sulphate is the molluscicide of choice.
—S. B. KENDALL.

BACH, S. J. (1952). **The metabolism of protein constituents in the mammalian body.** pp. viii + 272. Oxford: The Clarendon Press. London: The Oxford University Press. 40s. 3245

This volume is a useful addition to the library of senior students, research workers and teachers of biochemistry, and of physiologists and chemists.

The author, covering information obtained during the last 20 years, gives an integrated and critical account of the metabolic role and the interrelation of ten selected protein constituents, the remainder to be dealt with in a further volume. Five chapters deal respectively with alanine; glycine; hydroxyamino acids; valine; leucine and isoleucine; and sulphur-bearing amino acids.

Syntheses of compounds of particular biological interest and chemical reactions of general importance are discussed in greater detail, as for example the formation of haem and uric acid and reactions such as transmethylation and the oxidation-reduction of tissue-SH groups. There are 1,128 references to relevant literature, and author and subject indexes. The printing, paper and binding are excellent.—E. MARSH JONES.

WOOLLEY, D. W. (1952). **A study of antimetabolites.** pp. xiii + 269. New York: John Wiley & Sons, Inc; London: Chapman & Hall, Ltd. 40s. 3246

In this book comprising an introduction and 11 chapters the author presents a discussion of the biological functioning of various kinds of essential metabolic substances and their antagonism by the presence of other compounds closely related to them in chemical structure. For example the following are dealt with:— Some general aspects of the phenomenon; Hypotheses about mechanism of action of antimetabolites; The natural occurrence of antimetabolites as participants in physiological processes and as aetiological agents in disease; Selectivity of action of antimetabolites; Applications to chemotherapy; The designing of antimetabolites. There are 500 references, an index of structural formulae and a subject index.
—E. MARSH JONES.

MCCUNN, J. [Professor of Veterinary Anatomy, Royal Veterinary College, London.] [Revised by.] (1953). **Hobday's surgical diseases of the dog and cat.** pp. vii + 453. London: Baillière, Tindall & Cox. 6th Edit. 30s. 3247

In the course of six editions this book has undoubtedly reached its full stature, and there can be few, if any, surgical diseases of dogs that are not dealt with. The numerous illustrations, of which several are new, contribute definitely to the value of the book to the practitioner. During the last five years, advances have been made chiefly in fracture therapy, anaesthetics, and specific antibacterial therapy. The first two of these have been well described, but the same cannot be said about the third. Indeed, the overlooking of an advance in treatment that has revolutionized surgery must be regarded as a grave defect. Penicillin, and other antibiotics are completely ignored, and sulphonamides only receive the briefest passing mention. As these two classes of drugs have given us a wide measure of control over general and local sepsis, their omission is inexcusable. By the same token, far too many old-fashioned antiseptics are recommended. The book is well made and printed.—J. EDWARDS.

GOODWIN, T. W. (1952). **The comparative biochemistry of the carotenoids.** pp. x + 356. London: Chapman & Hall Ltd. 50s. 3248

The author discussed the distribution, biogenesis and function of the carotenoids throughout the plant and animal kingdoms in such a way that the book would be of value to workers interested in all the biological aspects of these pigments. He considered the biochemical approach to be the most effective as most progress in the study of carotenoids in living materials has been achieved by biochemical techniques.

The text is illustrated with organic formulae, diagrams and tables and there is reference to the literature throughout. In addition to discussing the important contributions which have appeared since the publication of Zechmeister's and Lederer's surveys in 1934 and 1934-35 respectively, the author has reconsidered much of the work published before 1934, in order to make the picture more complete.

There are two appendixes giving the carotene content of plants and the carotene values of plants in the various countries of Central America. There is an author index, a specific name index and a subject index.
—E. MARSH JONES.

ANON. (1953). **Lectures on the scientific basis of medicine. Vol. I, 1951-52. Delivered to the British Postgraduate Medical Federation.** pp. viii + 396. London: University of London, The Athlone Press. 30s. 3249

This volume consists of eighteen of the thirty-nine lectures arranged by the British

Postgraduate Medical Federation during the winter of 1951-52. The subject matter was therefore varied, and ranged over such topics as Adrenal hormones and ACTH, Recent light on mammary function, The organization of cortical mechanisms, Tissue response to injury, Some aspects of antibacterial immunity, Viruses as causes of disease, Antibodies and immunity to virus infection, Blood coagulation in theory and practice, and the Biological action of radiation. The papers were all by leaders on the respective subjects and provide sound accounts of advances in the fields covered.

—D. S. Papworth.

Albien, W. (1952). Was gibt es Neues für den praktischen Tierarzt? Jahrbuch 1950/51. **[Excerpts for practitioners from veterinary and medical journals in the German language for 1950-51.]** pp. 460. Hanover: Schlütersche Verlagsanstalt und Buchdruckerei. DM. 14.00. 3250

This is a new edition of the periodically published digest of German, Swiss and Austrian literature of veterinary interest, covering the period of 1950-51. Earlier editions of this publication by the same author have been appearing at irregular intervals since 1939, succeeding " Fortschritte auf dem Gebiet der Veterinärmedizin " edited by Linde and first published in 1927, which was followed by " Was gibt es Neues in der Veterinärmedizin?" edited by Puttkammer. The arrangement of the subject matter is similar to that of the previous edition reviewed [*V.B.* **21**, 289]. The purpose of this publication is to keep German practitioners informed of recent developments in veterinary medicine. To veterinarians outside Germany it gives a clear picture of work done in the above mentioned countries during the period under review. Paper, binding and print are of good quality.—E.G.

Berge, E. & Schebitz, H. [Edited by.] (1952). Festschrift zum 90. Geburtstag des geheimen Medizinalrates. Prof. Dr. scient. nat. et Dr. med. vet. et Dr. med. vet. H.C. Oskar Röder. **[Festschrift in honour of Professor Oskar Röder on his 90th birthday.]** pp. 222. Leipzig: S. Hirzel. DM. 20.-. 3251

This book, produced in honour of Professor Oskar Röder on the occasion of his 90th birthday, contains 24 contributions by specialists in a wide range of subjects, preceded by an appreciation of his work and career.

Among the articles are treatment of fractures, the castration of stallions and spaying of sows, excision of the vocal chords of the dog, lameness of racehorses, treatment of sand crack, surgery of the digestive tract of horses, shoeing of horses and joint diseases of foals. Four papers deal with anaesthetics and other articles deal with the haematology of pregnant mares and of foals, equine infectious anaemia, the treatment of suppurative wounds with proteolytic enzymes and the pathology of haemopericardium in horses. In addition, there are papers describing eosinophilic myositis of dogs, cryptorchidism of horses and aneurysm of the carotid artery of horses. Historians of veterinary medicine will appreciate the article on the veterinary clinic of the University of Halle.

The book is excellently produced.—E.V.L.

Denzler, B. (1590). Tiergesundheitslehre. Ein Leitfaden für den Unterricht an landwirtschaftlichen Berufs- und Landwirtschaftsschulen. **[Veterinary notes for students of agriculture.]** pp. 81. Stuttgart: Eugen Ulmer. DM. 1.60. 3252

A textbook of veterinary notes for students of agriculture.

Parry, S. C. (1953). **Polyglot medical questionnaire in twelve languages with digital system of communication.** pp. 62. London: H. K. Lewis & Co. Ltd. 12s. 6d. 3253

This is a booklet designed to help a medical man to put elementary questions in twelve different languages when dealing with patients who only know one or other of these languages. Such a manual should obviously be very useful in the particular circumstances for which it is designed. After general introductory pages, the text in the booklet is arranged under the following headings:—Descriptive notes relating to the medical questionnaire; explanatory notes in German, French, and Norwegian; model schemes for a questionnaire in English, German, Dutch, Norwegian, French, Spanish, Italian, and Polish; a further set of questions in the above languages, plus Swedish, Danish, Portuguese and Russian.

In certain circumstances, Veterinarians might be glad to have the services of a similar booklet, but probably only very rarely.

Morton, L. T. (1952). **How to use a medical library. A guide for practitioners, research workers and students.** pp. vii + 44. London: William Heinemann Medical Books Ltd. 2nd Edit. 5s. 3254

This useful booklet, first published in 1934, is intended as a guide for research workers and students and gives a brief account of the most important books and serial publications dealing

with medical libraries. The second edition has been completely rewritten. There are chapters on Arrangement within the library, Chief sources of information, Practical use of bibliographical sources, The location of medical literature, Compilation of medical bibliographies and use of catalogues. In this edition the author has added a short chapter on the development of medical periodicals and has replaced the original list of abstracting journals with a chapter on abstracting services. He has also expanded the list of medical libraries in Britain, which gives particulars of the services provided by each. He has also included those of the Republic of Ireland. There is an alphabetical index.—F.E.W.

KENNETH, J. H. [Revised by.] (1953). **Henderson's dictionary of scientific terms. Pronunciation, derivation, and definition of terms in biology, botany, zoology, anatomy, cytology, genetics, embryology, physiology.** pp. xvi+506. Edinburgh & London: Oliver & Boyd. 5th revised edit. 32s. 3255

This dictionary which was first published in 1920 has now reached its fifth edition. It has been further revised and extended since the fourth edition in 1948 and now has twenty-six additional pages and defines some 13,500 terms. The same high standard of production has been maintained yet the price remains the same.

This new edition of this excellent dictionary will be sure of a welcome.—F.E.W.

FLOOD, W. E. & WEST, M. (1952). **An explaining and pronouncing dictionary of scientific and technical words. 10,000 scientific and technical words in 50 subjects explained as to a person who has little or no knowledge of the particular subject.** pp. viii+397. London: New York: Toronto: Longmans, Green & Co. 12s. 6d. 3256

This somewhat unusual little dictionary, compiled for beginners and laymen, sets out to give elementary explanations of scientific and technical terms—"even some of the most difficult"—used in various fields. "Every explanation is made" in words which everyone should know—the explaining vocabulary used consisting of about 2,000 words—"so that it is clear even to a person who knows nothing of the subject". There are numerous illustrations, examples and cross-references. The pronunciation, given in the symbols of the international code of phonetics is a most useful feature and should make the dictionary especially serviceable to foreigners.—F.E.W.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

FINNEY, D. J. (1952). **Statistical method in biologocal assay.** pp. xix+661. London: Charles Griffin & Co., Ltd. 68s.

HALLMANN, L. (1953). Bakteriologische Nährböden. Ausgewählte Nährbodenrezepturen für das medizinisch-bakteriologische Laboratorium. **[Culture media used in medical bacteriology.]** pp. viii+252. Stuttgart: Georg Thieme. DM. 19.80.

LUCK, J. M., LORING, H. S. & MACKINNEY, G. [Edited by.] (1953). **Annual review of biochemistry. Vol. XXII.** pp. ix+729. Stanford, Calif.: Annual Reviews Inc.; London: H. K. Lewis & Co., Ltd. $6.00.

VERZÁR, F. [Edited by.] (1953). Symposium über Gegenwartsprobleme der Ernährungsforschung. Experientia Supplementum I. **[Symposium on present problems on nutrition research.]** pp. 312. Basel: Verlag Birkhäuser AG. Swiss Fr. 32. [In English, French and German.]

ANON. (1953). **Antibiotics in pig food.** pp. 19. Agricultural Research Council Report Series No. 13. London: H.M. Stat. Off. 1s. 6d.

ANON. (1953). **The International Who's Who.** pp. xvi+1112. London: Europa Publications, Ltd. 17th Edit. 80s.

ANON. (1953). Les périodiques médicaux dans le monde. **[World medical periodicals.]** pp. xvi+237. Paris & Geneva: United Nations Educational, Scientific and Cultural Organization & World Health Organization.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey

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ERRATA

V.B. **23,** page 529, abst. 3252. First line of title. The date should read " (1950)."

Page 549, abst. 3405. Line 2 of title: for " Adsorption " please read " Absorption ".

Line 4 of title: the volume number should read" **55,".**

Dr. E. Kodrnja, Zagreb, has asked that certain amendments be made to the following abstracts in Vol. 23 of the *Veterinary Bulletin*:—

Abst. 99. Rabies in vaccinated dogs occurred in two different batches each of nine dogs. In the one batch nine animals had been vaccinated while in the incubation stage of the disease. In the case of the other batch of nine there was an actual breakdown in the immunity. The abstract indicated that only nine dogs were concerned and they were the ones vaccinated during the incubation period.

Abst. 1253. The summary from which this abstract was prepared had indicated in general terms that the control of Teschen disease in Slovenia had been achieved by general sanitary measures, including slaughter of infected animals, together with immunization. Dr. Kodrnja informs us that until 1947 sanitary and slaughter measures alone had been used. After 1947 inoculation with vaccine had been widely adopted and is considered to have been the main factor in control of the disease.

Abst. 2256. Dr. Kodrnja informs us that the 47 human cases of rabies caused by wolves occurred not in 1950 but over the years from 1946-50.

The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration, details of which can be obtained from the Royal Society, Burlington House, London, W.1.

List of Abbreviations

A.I. — artificial insemination
ant. — anterior
A.P.F. — animal protein factor
approx. — approximately
aq. — aqueous
av. — average

B.A.L. — British anti Lewisite (2,3 dimercaptopropanol)
b.p. — boiling point

c.f. — complement fixation
clin. — clinical
coeff. — coefficient
conc. — concentration
c.s.f. — cerebrospinal fluid

diam. — diameter
dil. — dilute(d)

E.I.A. — equine infectious anaemia
equiv. — equivalent

ft. — foot (feet) [measurement only]

Hb. — haemoglobin
H.I. — haemagglutination inhibition

inj. — injection(s)
insol. — insoluble
Inst. (inst) — Institute
i/m — intramuscular(ly)
i/p — intraperitoneal(ly)
i/v — intravenous(ly)
i/d — intradermal(ly)

lab. — laboratory (-ories)

max. — maximum (-al)

N.D.V. — Newcastle disease virus
N.D. — Newcastle disease

r.b.c. — red blood corpuscles
r.e.s. — reticuloendothelial system
R.H. — relative humidity

s/c — subcutaneous(ly)
soln. — solution
suppl. — supplement(s) (-ary)
std. — standard

temp. — temperature
therap. — therapeutic

U.V. — ultra-violet

vet. — veterinary
vol. — volume

w.b.c. — white blood corpuscles
wt. — weight

/ — per (*e.g.* wt./vol.; mg./lb. body wt.)

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

Books for Review.

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.